

File 344:Chinese Patents Abs Aug 1985-2004/Mar  
(c) 2004 European Patent Office  
File 347:JAPIO Nov 1976-2003/Nov(Updated 040308)  
(c) 2004 JPO & JAPIO  
File 348:EUROPEAN PATENTS 1978-2004/Mar W03  
(c) 2004 European Patent Office  
File 349:PCT FULLTEXT 1979-2002/UB=20040325,UT=20040318  
(c) 2004 WIPO/Univentio  
File 350:Derwent WPIX 1963-2004/UD,UM &UP=200419  
(c) 2004 Thomson Derwent

Set	Items	Description
S1	2657	AU=(QIAN, X? OR QIAN X? OR TRAN, D? OR TRAN D? OR SAID, A? OR SAID A?) OR CO=INTEL
S2	4	S1 AND (NYQUIST OR (PREEQUALI? OR PRE()EQUALI?))
S3	5	S1 AND IC=(H04B-001/10 OR H04B-001/38 OR H04L-005/16)
S4	8	S2 OR S3
S5	8	IDPAT (sorted in duplicate/non-duplicate order)
S6	8	IDPAT (primary/non-duplicate records only)

6/5/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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014929166 \*\*Image available\*\*  
WPI Acc No: 2002-749875/200281  
XRPX Acc No: N02-590553

Filter for cable modem, multiplies samples of two-bit QAM signal and  
filter weight which are convolution of Nyquist filter weights with pre  
- equalizer filter weights

Patent Assignee: QIAN X (QIAN-I); SAID A (SAID-I); TRAN D H (TRAN-I)

Inventor: QIAN X ; SAID A ; TRAN D H

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20020114380	A1	20020822	US 2000745598	A	20001221	200281 B

Priority Applications (No Type Date): US 2000745598 A 20001221

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 20020114380	A1		11 H04B-001/10	

Abstract (Basic): US 20020114380 A1

NOVELTY - An adder (402) adds the samples of the discrete time  
signal obtained by multiplying the samples of input two-bit QAM signal  
with set of filter weights. The filter weights are the convolution of  
set of Nyquist filter weights with set of pre - equalizer filter  
weights.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the  
following:

- (1) Cable modem;
  - (2) Method to provide Nyquist filtering and pre - equalization ;
- and
- (3) Computer system.

USE - Combined pre - equalizer and Nyquist filter for cable  
modem (claimed) used in computer system (claimed).

ADVANTAGE - Combining pre - equalization with Nyquist filtering  
results in filter structure having no more inherent complexity.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of  
the filter.

Adder (402)

pp; 11 DwgNo 4/7

Title Terms: FILTER; CABLE; MODEM; MULTIPLICATION; SAMPLE; TWO; BIT; QAM;  
SIGNAL; FILTER; WEIGHT; CONVOLUTE; NYQUIST ; FILTER; WEIGHT; PRE; FILTER  
; WEIGHT

Derwent Class: T01; U21; U22; W01

International Patent Class (Main): H04B-001/10

International Patent Class (Additional): H04B-001/38 ; H04L-005/16

File Segment: EPI

6/5/2 (Item 2 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
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01547411  
ADAPTIVE FILTER  
ADAPTIVER FILTER  
FILTRE ADAPTATIF

**PATENT ASSIGNEE:**

Intel Corporation, (3070463), 2200 Mission College Boulevard, Santa Clara, CA 95202, (US), (Applicant designated States: all)

**INVENTOR:**

PERETS, Yoni, 94/7 Akiva Street, 43263 Raanana, (IL)

**PATENT (CC, No, Kind, Date):**

WO 2003001690 030103

**APPLICATION (CC, No, Date):** EP 2002756142 020607; WO 2002US18268 020607

**PRIORITY (CC, No, Date):** US 887595 010622

**DESIGNATED STATES:** AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR

**EXTENDED DESIGNATED STATES:** AL; LT; LV; MK; RO; SI

**INTERNATIONAL PATENT CLASS:** H04B-001/12; H04B-001/10

**CITED PATENTS (WO A):** XP 10376167

**CITED REFERENCES (WO A):**

US 2001002203 A1

US 5945948 A

BAHL P ET AL: "RADAR: an in-building RF-based user location and tracking system" INFOCOM 2000. NINETEENTH ANNUAL JOINT CONFERENCE OF THE IEEE COMPUTER AND COMMUNICATIONS SOCIETIES. PROCEEDINGS. IEEE TEL AVIV, ISRAEL 26-30 MARCH 2000, PISCATAWAY, NJ, USA, IEEE, US, 26 March 2000 (2000-03-26), pages 775-784, XP010376167 ISBN: 0-7803-5880-5;

**LEGAL STATUS (Type, Pub Date, Kind, Text):**

Application: 030226 A1 International application. (Art. 158(1))

Application: 030226 A1 International application entering European phase

**LANGUAGE (Publication, Procedural, Application):** English; English; English

6/5/3 (Item 3 from file: 348)

DIALOG(R) File 348: EUROPEAN PATENTS

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01075557

**METHOD AND APPARATUS FOR SOURCE SYNCHRONOUS DATA TRANSFER**

**PROCEDE ET APPAREIL DE TRANSFERT DE DONNEES SYNCHRONES A LA SOURCE**

**PATENT ASSIGNEE:**

INTEL CORPORATION, (322932), 2200 Mission College Boulevard, P.O. Box 58119, Santa Clara, CA 95052-8119, (US), (Applicant designated States: all)

**INVENTOR:**

KELLY, Timothy, W., 6995 S.W. Hyland Way, Beaverton, OR 97008, (US)

PAWLOWSKI, Stephen, S., 6624 S.W. 158th Avenue, Beaverton, OR 97007, (US)

SELF, Keith, M., 8985 S.W. 190th Avenue, Aloha, OR 97007, (US)

SMITH, Jeffrey, E., 6990 S.W. Kaufman Drive, Aloha, OR 97007, (US)

**PATENT (CC, No, Kind, Date):**

WO 9938295 990729

**APPLICATION (CC, No, Date):** EP 99903447 990126; WO 99US1747 990126

**PRIORITY (CC, No, Date):** US 13479 980126

**DESIGNATED STATES:** AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE

**INTERNATIONAL PATENT CLASS:** H04L-023/00; H04L-007/00; H04L-005/16 ;

H04B-001/38

**LEGAL STATUS (Type, Pub Date, Kind, Text):**

Application: 010620 A1 International application. (Art. 158(1))

Application: 990929 A1 International application. (Art. 158(1))

Withdrawal: 010620 A1 Date application deemed withdrawn: 20000829

Appl Changed: 010620 A1 International application not entering European phase

Application: 990929 A1 International application entering European phase

LANGUAGE (Publication,Procedural,Application): English; English; English

6/5/4 (Item 4 from file: 348)  
DIALOG(R) File 348:EUROPEAN PATENTS  
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01026648

**IMPEDANCE CONTROL CIRCUIT**

**IMPEDANZSTEUERUNGSSCHALTUNG**

**CIRCUIT DE COMMANDE D'IMPEDANCE**

PATENT ASSIGNEE:

INTEL CORPORATION, (322933), 2200 Mission College Boulevard, Santa Clara,  
CA 95052, (US), (Proprietor designated states: all)

INVENTOR:

MOONEY, Stephen, R., 17265 N.W. Madras Court, Beaverton, OR 97006, (US)  
HAYCOCK, Matthew, B., 16206 N.W. Barkton Court, Beaverton, OR 97006, (US)  
KENNEDY, Joseph, T., 16006 N.W. Lyndel Lane, Beaverton, OR 97006, (US)

LEGAL REPRESENTATIVE:

Molyneaux, Martyn William et al (34019), Harrison Goddard Foote 40-43  
Chancery Lane, London WC2A 1JA, (GB)

PATENT (CC, No, Kind, Date): EP 1010013 A2 000621 (Basic)  
EP 1010013 B1 040317  
WO 1999006845 990211

APPLICATION (CC, No, Date): EP 98935769 980717; WO 98US14846 980717

PRIORITY (CC, No, Date): US 902345 970729

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: G01R-003/00; H03K-019/00

CITED PATENTS (EP B): EP 520687 A; EP 639912 A; US 5134311 A; US 5457407 A;  
US 5726583 A

NOTE:

No A-document published by EPO

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 000621 A2 Published application without search report

Application: 990512 A2 International application (Art. 158(1))

Grant: 040317 B1 Granted patent

Examination: 020904 A2 Date of dispatch of the first examination  
report: 20020718

Change: 001018 A2 International Patent Classification changed:  
20000831

Change: 001018 A2 International Patent Classification changed:  
20000831

Search Report: 001018 A2 Date of drawing up and dispatch of  
supplementary:search report 20000906

Examination: 000621 A2 Date of request for examination: 20000217

Change: 010905 A2 Legal representative(s) changed 20010718

Change: 040303 A2 Legal representative(s) changed 20040116

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200412	545
CLAIMS B	(German)	200412	480
CLAIMS B	(French)	200412	596
SPEC B	(English)	200412	4506
Total word count - document A			0
Total word count - document B			6127
Total word count - documents A + B			6127

6/5/5 (Item 5 from file: 348)  
DIALOG(R) File 348:EUROPEAN PATENTS

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00997189

**A METHOD FOR ENHANCING 3-D LOCALIZATION OF SPEECH**

**VERFAHREN ZUR DREIDIMENSIONALEN LOKALISIERUNG VON SPRACHE**

**PROCEDE SERVANT A AMELIORER LA LOCALISATION TRIDIMENSIONNELLE DE LA VOIX**

**PATENT ASSIGNEE:**

INTEL CORPORATION, (322932), 2200 Mission College Boulevard, P.O. Box  
58119, Santa Clara, CA 95052-8119, (US), (Proprietor designated states:  
all)

**INVENTOR:**

LEAVY, Mark, 1606 S.E. Holly Street, Portland, Oregon 97214, (US)

**LEGAL REPRESENTATIVE:**

Molyneaux, Martyn William et al (34019), Harrison Goddard Foote 40-43  
Chancery Lane, London WC2A 1JA, (GB)

**PATENT (CC, No, Kind, Date):** EP 970464 A1 000112 (Basic)

EP 970464 B1 030917

WO 98043239 981001

**APPLICATION (CC, No, Date):** EP 98901213 980106; WO 98US427 980106

**PRIORITY (CC, No, Date):** US 826016 970326

**DESIGNATED STATES:** AT; DE; FI; FR; GB; IT

**INTERNATIONAL PATENT CLASS:** G10L-021/02

**CITED PATENTS (EP B):** EP 627728 A; EP 653897 A; EP 658874 A; US 3974336 A;  
US 4099030 A; US 4622692 A; US 5068899 A; US 5083310 A; US 5579434 A; US  
5581652 A; US 5687243 A

**CITED PATENTS (WO A):** P A A A A A

**CITED REFERENCES (EP B):**

YAN MING CHENG ET AL: "Statistical recovery of wideband speech from  
narrowband speech" IEEE TRANSACTIONS ON SPEECH AND AUDIO PROCESSING,  
OCT. 1994, USA, vol. 2, no. 4, pages 544-548, XP002106825 ISSN:  
1063-6676;

**NOTE:**

No A-document published by EPO

**LEGAL STATUS (Type, Pub Date, Kind, Text):**

**Change:** 001220 A1 International Patent Classification changed:  
20001102

**Application:** 20000112 A1 Published application with search report

**Change:** 040303 B1 Legal representative(s) changed 20040116

**Change:** 030910 A1 International Patent Classification changed:  
20030725

**Change:** 010905 A1 Legal representative(s) changed 20010718

**Search Report:** 001227 A1 Date of drawing up and dispatch of  
supplementary:search report 20001115

**Examination:** 020724 A1 Date of dispatch of the first examination  
report: 20020606

**Grant:** 030917 B1 Granted patent

**Application:** 990310 A1 International application (Art. 158(1))

**Examination:** 20000112 A1 Date of request for examination: 19991011

**Change:** 20000315 A1 Inventor information changed: 20000125

**LANGUAGE (Publication,Procedural,Application):** English; English; English

**FULLTEXT AVAILABILITY:**

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200338	415
CLAIMS B	(German)	200338	402
CLAIMS B	(French)	200338	510
SPEC B	(English)	200338	2458
Total word count - document A			0
Total word count - document B			3785
Total word count - documents A + B			3785

6/5/6 (Item 6 from file: 348)  
DIALOG(R) File 348:EUROPEAN PATENTS  
(c) 2004 European Patent Office. All rts. reserv.

00880291

METHOD AND APPARATUS FOR MINIMIZING MODEM POWER WHILE MAXIMIZING MODEM THROUGHPUT  
VERFAHREN UND SCHALTUNG ZUR GLEICHZEITIGEN MINIMIERUNG DER LEISTUNGS-AUFNAHME UND MAXIMIERUNG DES DURCHSATZES EINES MODEMS  
PROCEDE ET DISPOSITIF REDUISANT LA CONSOMMATION D'UN MODEM ET AUGMENTANT SON DEBIT

PATENT ASSIGNEE:

INTEL CORPORATION, (322933), 2200 Mission College Boulevard, Santa Clara, CA 95052, (US), (Applicant designated States: all)

INVENTOR:

SAMSON, Eric, C., 3218 Cambridge, Cameron Park, CA 95682, (US)

LEGAL REPRESENTATIVE:

Molyneaux, Martyn William et al (34019), Harrison Goddard Foote 40-43 Chancery Lane, London WC2A 1JA, (GB)

PATENT (CC, No, Kind, Date): EP 974201 A1 000126 (Basic)  
WO 9729553 970814

APPLICATION (CC, No, Date): EP 97904264 970106; WO 97US1963 970106

PRIORITY (CC, No, Date): US 598366 960208

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: H04B-001/38 ; H04L-005/16

NOTE:

No A-document published by EPO

LEGAL STATUS (Type, Pub Date, Kind, Text):

Search Report: 001108 A1 Date of drawing up and dispatch of supplementary:search report 20000921

Application: 20000126 A1 Published application with search report

Change: 040303 A1 Legal representative(s) changed 20040116

Change: 010905 A1 Legal representative(s) changed 20010718

Examination: 030312 A1 Date of dispatch of the first examination report: 20030127

Application: 971105 A1 International application (Art. 158(1))

Examination: 20000126 A1 Date of request for examination: 19980907

LANGUAGE (Publication,Procedural,Application): English; English; English

6/5/7 (Item 7 from file: 348)  
DIALOG(R) File 348:EUROPEAN PATENTS  
(c) 2004 European Patent Office. All rts. reserv.

00791141

AUTOMATIC CELLULAR PHONE BATTERY CHARGING BY MOBILE PERSONAL COMPUTER  
AUTOMATISCHES BATTERIELADESYSTEM FUR ZELLULARES TELEPHON, DAS EINEN MOBILEN PERSONALCOMPUTER VERWENDET  
CHARGE AUTOMATIQUE DE BATTERIE DE TELEPHONE CELLULAIRE PAR ORDINATEUR PERSONNEL PORTATIF

PATENT ASSIGNEE:

INTEL CORPORATION, (322933), 2200 Mission College Boulevard, Santa Clara, CA 95052, (US), (Proprietor designated states: all)

INVENTOR:

BAR-ON, David, S. Masada Street, 10503 Givat Ela, (IL)

GAVISH, Dan, 4 Harakafot Street, 34745 Haifa, (IL)

LEGAL REPRESENTATIVE:

Wombwell, Francis et al (46021), Potts, Kerr & Co. 15, Hamilton Square, Birkenhead Merseyside CH41 6BR, (GB)

PATENT (CC, No, Kind, Date): EP 803097 A1 971029 (Basic)

EP 803097 B1 040303  
WO 1996021900 960718  
APPLICATION (CC, No, Date): EP 95944138 951218; WO 95US16488 951218  
PRIORITY (CC, No, Date): US 370185 950109  
DESIGNATED STATES: DE; GB  
INTERNATIONAL PATENT CLASS: G06F-013/00; H04B-001/38 ; H04M-001/72;  
H02J-007/00

CITED PATENTS (EP B): US 5313642 A; US 5375051 A

NOTE:

No A-document published by EPO  
LEGAL STATUS (Type, Pub Date, Kind, Text):  
Examination: 020828 A1 Date of dispatch of the first examination  
report: 20020712  
Application: 961016 A International application (Art. 158(1))  
Grant: 040303 B1 Granted patent  
Application: 971029 A1 Published application (A1with Search Report  
;A2without Search Report)  
Examination: 971029 A1 Date of filing of request for examination:  
970728  
Search Report: 991020 A1 Date of drawing up and dispatch of  
supplementary:search report 19990908  
Change: 991027 A1 International Patent Classification changed:  
19990903

LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200410	716
CLAIMS B	(German)	200410	632
CLAIMS B	(French)	200410	873
SPEC B	(English)	200410	2722
Total word count - document A			0
Total word count - document B			4943
Total word count - documents A + B			4943

6/5/8 (Item 8 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2004 European Patent Office. All rts. reserv.

00481792

Method and apparatus for measuring the frequency of a spectral line.  
Verfahren und Anordnung zum Messen der Frequenz einer Spektrallinie.  
Procede et dispositif pour mesurer la frequence d'une ligne spectrale.

PATENT ASSIGNEE:

TEKTRONIX, INC., (463984), Howard Vollum Park 14150 Karl Braun Drive P.O.  
Box 500, Beaverton Oregon 97077, (US), (applicant designated states:  
DE;FR;GB)

INVENTOR:

Said, Ahmed , 8745 S.W. Pacer Drive, Beaverton, Oregon 97005, (US

LEGAL REPRESENTATIVE:

Wombwell, Francis et al (46021), Potts, Kerr & Co. 15, Hamilton Square,  
Birkenhead Merseyside L41 6BR, (GB)

PATENT (CC, No, Kind, Date): EP 450809 A2 911009 (Basic)  
EP 450809 A3 921223

APPLICATION (CC, No, Date): EP 91302436 910320;

PRIORITY (CC, No, Date): US 505878 900406

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: G01R-023/165;

CITED PATENTS (EP A): GB 2123155 A

CITED REFERENCES (EP A):

FUNKSCHAU vol. 52, no. 21, October 1980, MUNCHEN DE page 82-89 ARNOLDT

ABSTRACT EP 450809 A2

A method and apparatus are disclosed, that is suitable for digital or analog spectrum analyzers, for accurately and rapidly ascertaining the frequency of a spectral line by interpolating its location from the response of two Gaussian shaped filters whose center frequencies bracket the frequency of the spectral line. The difference is taken between the amplitudes in decibels of the responses of the two Gaussian filters to the spectral line input signal. The frequency of the spectral line is then found from the linear relationship  $f_x = \Delta \log \text{ampl.} \cdot c_1 + c_2$ , where  $c_1$  is proportional to the square of the standard deviation of the Gaussian filters and inversely proportional to the difference between the center frequencies,  $f_1$  and  $f_2$ , of the Gaussian filters times the logarithm of  $e$ , and where  $c_2$  is the midpoint between the center frequencies,  $f_1$  and  $f_2$ , of the Gaussian filters,  $G_1$  and  $G_2$ . Alternatively, a sweeping local oscillator output can be mixed with the signal containing the spectral line of unknown frequency and the resulting signal applied to one Gaussian filter at two different times to produce equivalent results. In this case,  $c_1$  is proportional to the square of the standard deviation of the Gaussian filter and inversely proportional to the difference between the local oscillator frequencies,  $f_{LO-t1}$  and  $f_{LO-t2}$ , at times  $t_1$  and  $t_2$ , times the logarithm of  $e$ , and  $c_2$  is the average of the local oscillator frequencies,  $f_{LO-t1}$  and  $f_{LO-t2}$ , plus  $f$ , the center frequency of the Gaussian filter. (see image in original document)

ABSTRACT WORD COUNT: 252

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 911009 A2 Published application (A1with Search Report  
;A2without Search Report)  
\*Assignee: 920930 A2 Applicant (transfer of rights) (change):  
TEKTRONIX INC. (463981) Howard Vollum Park  
14150 S.W. Karl Braun Drive P.O.Box 500, Mail  
Stop 50-PAT Beaverton Oregon 97077-0001 (US)  
(applicant designated states: DE;FR;GB)  
Search Report: 921223 A3 Separate publication of the European or  
International search report  
Examination: 930714 A2 Date of filing of request for examination:  
930514  
Examination: 950215 A2 Date of despatch of first examination report:  
941229  
Withdrawal: 951108 A2 Date on which the European patent application  
was deemed to be withdrawn: 950509

LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	951
SPEC A	(English)	EPABF1	3304
Total word count - document A			4255
Total word count - document B			0
Total word count - documents A + B			4255

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File 344:Chinese Patents Abs Aug 1985-2004/Mar

(c) 2004 European Patent Office

File 347:JAPIO Nov 1976-2003/Nov(Updated 040308)

(c) 2004 JPO & JAPIO

File 350:Derwent WPIX 1963-2004/UD,UM &UP=200419

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Set	Items	Description
S1	6085	· NYQUIST OR FIR OR FINITE()IMPULSE()RESPONS?
S2	976	(PREEQUALI? OR PRE()EQUALI? OR PREDISTORTION OR PRE()DISTO- RTION)
S3	14	S1 AND S2
S4	14	IDPAT (sorted in duplicate/non-duplicate order)
S5	14	IDPAT (primary/non-duplicate records only)

5/3,K/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

014929166 \*\*Image available\*\*  
WPI Acc No: 2002-749875/200281  
XRPX Acc No: N02-590553

Filter for cable modem, multiplies samples of two-bit QAM signal and  
filter weight which are convolution of Nyquist filter weights with pre  
- equalizer filter weights

Patent Assignee: QIAN X (QIAN-I); SAID A (SAID-I); TRAN D H (TRAN-I)

Inventor: QIAN X; SAID A; TRAN D H

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20020114380	A1	20020822	US 2000745598	A	20001221	200281 B

Priority Applications (No Type Date): US 2000745598 A 20001221

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 20020114380	A1	11	H04B-001/10	

Filter for cable modem, multiplies samples of two-bit QAM signal and  
filter weight which are convolution of Nyquist filter weights with pre  
- equalizer filter weights

Abstract (Basic):

... obtained by multiplying the samples of input two-bit QAM signal  
with set of filter weights. The filter weights are the convolution of  
set of Nyquist filter weights with set of pre - equalizer filter  
weights.

... 2) Method to provide Nyquist filtering and pre - equalization  
; and...

...Combined pre - equalizer and Nyquist filter for cable modem  
(claimed) used in computer system (claimed...)

...Combining pre - equalization with Nyquist filtering results in  
filter structure having no more inherent complexity...

...Title Terms: NYQUIST ;

? t/3,k/2-14

5/3,K/2 (Item 2 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

014878128 \*\*Image available\*\*  
WPI Acc No: 2002-698834/200275  
XRPX Acc No: N02-551002

Method of pre-distorting signal in signal channel containing root  
Nyquist bandpass filters in transmission and reception portions of  
channel by including forward model representing magnitude and phase  
distortion in channel

Patent Assignee: TANDBERG TELEVISION ASA (TAND-N)

Inventor: BEECH B H; EDWARDS D G; PERINPANAYAGAM R

Number of Countries: 100 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200273920	A1	20020919	WO 2002GB1153	A	20020313	200275 B

### Abstract (Basic) :

... An input (10) receives Manchester-encoded bipolar pulse  $x(t)$  which is then input to wave shaping circuit including **FIR** filter (12) and zero order hold (14). The wave shaping circuit includes bank of current sources, each scaled by a coefficient. The current sources are ...

... Analog finite impulse response based line drivers...

... Integrates analog finite impulse response filter and pre - equalization function for high speed data communication. Reduces the power consumption of the line driver...

... **FIR** Filter (12

5/3,K/4 (Item 4 from file: 350)  
 DIALOG(R)File 350:Derwent WPIX  
 (c) 2004 Thomson Derwent. All rts. reserv.

013258761 \*\*Image available\*\*  
 WPI Acc No: 2000-430644/200037  
 XRPX Acc No: N00-321347

Digital signal processor resident RF error amplifier performance monitor for communication system, outputs control signals to adjust signal processing components of loops and cancel intermodulation distortions

Patent Assignee: SPECTRAN CORP (LUCE )

Inventor: PROCTOR J A

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6078216	A	20000620	US 9853529	A	19980331	200037 B

Priority Applications (No Type Date): US 9853529 A 19980331

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 6078216	A	11	H03F-001/32	

Abstract (Basic):

... Data aliased representative of samples of RF error signal from carrier cancellation combiner (30) and composite signal are sampled at less than **Nyquist** criteria in re-injected output signal flow path of RF power amplifier. The processor processes the aliased data to output control signals for adjusting signal...

... Facilitates to establish the update control parameter signals for controlling operation of adaptive **predistortion** unit and vector modulator of preamplification signal processing loop and that of vector modulator of feed forward error correction and re-injection loop are controllably...

5/3,K/5 (Item 5 from file: 350)  
 DIALOG(R)File 350:Derwent WPIX  
 (c) 2004 Thomson Derwent. All rts. reserv.

011981530 \*\*Image available\*\*  
 WPI Acc No: 1998-398440/199834  
 XRPX Acc No: N98-309997

Signal conditioner for transversal filters in e.g. telecommunications power transmitters - has baseband pre - equalised and predistorted output waveform generation comprising quantised in-phase and quadrature signal waveforms representative of input signals.

Patent Assignee: LOCKHEED MARTIN AEROSPACE CORP (LOCK )

Inventor: KAUFMANN J

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5778029	A	19980707	US 9361157	A	19930513	199834 B
			US 96634514	A	19960418	

Priority Applications (No Type Date): US 9361157 A 19930513; US 96634514 A 19960418

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5778029	A		9	H04L-025/03	Cont of application US 9361157

... has baseband pre - equalised and predistorted output waveform generation comprising quantised in-phase and quadrature signal waveforms representative of input signals.

...Abstract (Basic): A first equivalent equaliser is provided for generating the pre - equalised in-phase waveforms, and a second equaliser provides for pre - equalised quadrature waveforms. Delay elements [11] for the two pre - equalisers contain the same signal and combine to produce the transversal filter [50]. The filter comprises delay elements [11a,11b] and look-up tables [12']that...

...USE- for Finite Impulse Response transversal filter functions for waveforms that represent symbols. For receiver designs that utilise decision feedback techniques e.g. decision feedback equaliser...

5/3,K/6 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

011734882 \*\*Image available\*\*

WPI Acc No: 1998-151792/199814

XRPX Acc No: N98-120887

FIR filter for travelling wave tube amplifier used in communication - includes symbol delay component which sequentially delays input binary code corresponding to input symbol

Patent Assignee: LORAL AEROSPACE CORP (LORA-N)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 10022785	A	19980123	JP 96175413	A	19960617	199814 B

Priority Applications (No Type Date): JP 96175413 A 19960617

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 10022785	A		9	H03H-015/00	

FIR filter for travelling wave tube amplifier used in communication...

...Abstract (Basic): An output signal includes a predistortion waveform to compensate the effect of non-linearity of disturbance between symbols. Each output signal is processed by using predetermined pair of symbol address designation...

Title Terms: FIR ;

5/3,K/7 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

011647020      \*\*Image available\*\*  
WPI Acc No: 1998-063928/199807  
XRPX Acc No: N98-050186

Far-end crosstalk compensation method using predistortion by adaptive filter - optimising finite impulse response filter, in terms of minimal residual error contributed by each subscriber, using training mode

Patent Assignee: SIEMENS AG (SIEI )  
Inventor: SCHMUECKING D; WOERNER A  
Number of Countries: 001 Number of Patents: 002  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 19624928	A1	19980108	DE 1024928	A	19960621	199807 B
DE 19624928	C2	20000803	DE 1024928	A	19960621	200038

Priority Applications (No Type Date): DE 1024928 A 19960621  
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 19624928	A1		4	H04B-003/32	
DE 19624928	C2			H04B-003/32	

Far-end crosstalk compensation method using predistortion by adaptive filter...

...optimising finite impulse response filter, in terms of minimal residual error contributed by each subscriber, using training mode

5/3,K/8      (Item 8 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

010772321      \*\*Image available\*\*  
WPI Acc No: 1996-269274/199628  
XRPX Acc No: N96-226296

Frequency detector for carrier frequency synchronisation - has in-phase and quadrature components of demodulated reception signal processed by at least two cascaded filter arrangements, containing complex bandpass filters and real or complex pre - equalisers

Patent Assignee: ANT NACHRICHTENTECHNIK GMBH (BOSC ); BOSCH GMBH ROBERT (BOSC ); ALBERTY T (ALBE-I)  
Inventor: ALBERTY T

Number of Countries: 006 Number of Patents: 003  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 4445986	C1	19960613	DE 4445986	A	19941222	199628 B
EP 719015	A2	19960626	EP 95114845	A	19950921	199630
US 5642385	A	19970624	US 95540649	A	19951011	199731

Priority Applications (No Type Date): DE 4445986 A 19941222  
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 4445986	C1		7	H04L-027/00	
EP 719015	A2 G		8	H04L-027/227	

Designated States (Regional): DE FR GB IT SE  
US 5642385      A      10 H04L-007/00

... in-phase and quadrature components of demodulated reception signal

processed by at least two cascaded filter arrangements, containing complex bandpass filters and real or complex pre - equalisers

- ...Abstract (Basic): The frequency detector uses at least 2 cascades of complex bandpass filters with frequency ranges corresponding to the Nyquist flanks of the power distribution spectrum of the reception signal and real or complex pre - equalisers , the outputs from the cascades combined to provide the control signal...
- ...Abstract (Equivalent): means for inputting the real part (x) and the imaginary part (y) of said product signal; cascades of complex bandpass filters and real or complex pre - equalizers , said cascades including means (BP) for bandpass filtering and means (VE) for pre - equalizing the real part (x) and the imaginary part (y) of the product signal to form cascade output signals and a logic circuit including means for...
- ...the resulting signals from each other to produce said control signal (uf), wherein at least two of said cascades, each composed of one of the pre - equalizers and one of the bandpass filters, have center frequencies having different absolute values situated in a frequency range of a single Nyquist edge of a power density spectrum of said demodulated received signal...

5/3,K/9 (Item 9 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

010165819 \*\*Image available\*\*  
WPI Acc No: 1995-067072/199509  
XRPX Acc No: N95-053250

Increased information rate system using embedded sample modulation and predistortion equalisation - transmits multiple symbols in one symbol time with symbols chosen such that subset of samples representing symbol has inverse

Patent Assignee: NEWHALL E E (NEWH-I)  
Inventor: NEWHALL E E  
Number of Countries: 018 Number of Patents: 006  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9502297	A1	19950119	WO 93CA282	A	19930709	199509 B
US 5448206	A	19950905	US 93137419	A	19931018	199541
EP 707767	A1	19960424	EP 93915595	A	19930709	199621
			WO 93CA282	A	19930709	
EP 707767	B1	19970514	EP 93915595	A	19930709	199724
			WO 93CA282	A	19930709	
DE 69310775	E	19970619	DE 610775	A	19930709	199730
			EP 93915595	A	19930709	
			WO 93CA282	A	19930709	
CA 2160978	C	19981006	CA 2160978	A	19930709	199850
			WO 93CA282	A	19930709	

Priority Applications (No Type Date): WO 93CA282 A 19930709

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9502297	A1	E	56	H04L-027/00	
				Designated States (National): CA	
				Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE	
US 5448206	A		38	H03C-003/00	
EP 707767	A1	E	1	H04L-027/00	Based on patent WO 9502297

Designated States (Regional): DE ES FR GB IT SE  
 EP 707767 B1 E 49 H04L-027/00 Based on patent WO 9502297  
 Designated States (Regional): DE ES FR GB IT SE  
 DE 69310775 E H04L-027/00 Based on patent EP 707767  
 Based on patent WO 9502297  
 CA 2160978 C H04L-027/00 Based on patent WO 9502297

Increased information rate system using embedded sample modulation and predistortion equalisation...

...Abstract (Equivalent): 27), said embedded sample streams being the sum of scaled values of a unique sample sequence; said embedded sample streams being filtered by an inverse finite impulse response filter (26) to generate output sample sequences whose values are related to the scaling applied by said modulator, permitting the recovery of said information, and wherein said inverse finite impulse response filter, when operating to filter said unique sample sequence, generates an output which is substantially a unit pulse, and wherein said receiver may optionally include an embedded sample equaliser (22) which may be used to adjust said inverse finite impulse response filter, thereby maintaining substantially a unit pulse output when said inverse finite impulse response filter operates to filter said unique sample sequence...

...Abstract (Equivalent): to generate embedded sample streams, consisting of the sum of scaled values of a unique sample sequence. These streams are then filtered by an inverse FIR (finite impulse response) filter to generate output sample sequences of values related to the scaling applied by the modulator as well as a unit pulse output. This then...

...USE/ADVANTAGE - E.g. baseband and passband systems. Predistortion equalisation prevents signal components from cancelling each other avoiding fading. Bandwidth efficient...

5/3,K/10 (Item 10 from file: 350)  
 DIALOG(R)File 350:Derwent WPIX  
 (c) 2004 Thomson Derwent. All rts. reserv.

009514423 \*\*Image available\*\*  
 WPI Acc No: 1993-207959/199326  
 XRPX Acc No: N93-159955

Pre - equalisation system for multipoint digital communications transmitter - adjusts automatic equaliser in receiver using training sequence, and transmits coeffs. for optimum adjustment back to transmitter equaliser, after which receiver equaliser is disabled

Patent Assignee: AMERICAN TELEPHONE & TELEGRAPH CO (AMTT )

Inventor: CHUNG H Y; WANG J D; WANG J

Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
GB 2262867	A	19930630	GB 8924151	A	19891026	199326 B
			GB 934845	A	19930311	
GB 2262867	B	19930915	GB 8924151	A	19891026	199337
			GB 934845	A	19891026	

Priority Applications (No Type Date): US 89304051 A 19890130; US 88266435 A 19881102

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

GB 2262867 A 21 H04L-027/01 Derived from application GB 8924151  
GB 2262867 B H04L-027/01 Derived from application GB 8924151

Pre - equalisation system for multipoint digital communications  
transmitter...

...Title Terms: NYQUIST ;

5/3,K/11 (Item 11 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

008435468 \*\*Image available\*\*  
WPI Acc No: 1990-322468/199043  
XRPX Acc No: N90-246996

Television appts. with peaking of wideband luminance input signal - has  
auxiliary video input terminal to couple luminance and chrominance input  
signals to respective inputs of peaking circuits

Patent Assignee: THOMSON CONSUMER ELECTRONICS INC (THOH ); RCA LICENSING  
CORP (RADC ); THOMSON CONSUMER EL (THOH )

Inventor: SENDELWECK G K

Number of Countries: 014 Number of Patents: 014

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 394001	A	19901024	EP 90304126	A	19900418	199043 B
US 4963958	A	19901016	US 89341095	A	19890420	199044
CA 2010663	A	19901020				199102
FI 9001856	A	19901021				199107
CN 1046653	A	19901031				199128
JP 3128578	A	19910531				199128
EP 394001	A3	19920226	EP 90304126	A	19900418	199324
FI 93074	B	19941031	FI 901856	A	19900412	199443
CN 1023540	C	19940112	CN 90102284	A	19900419	199518
EP 394001	B1	19951129	EP 90304126	A	19900418	199601
DE 69023801	E	19960111	DE 623801	A	19900418	199607
			EP 90304126	A	19900418	
ES 2080794	T3	19960216	EP 90304126	A	19900418	199614
CA 2010663	C	19991228	CA 2010663	A	19900222	200021
KR 159936	B1	19990115	KR 905325	A	19900417	200036

Priority Applications (No Type Date): US 89341095 A 19890420

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 394001 A 10

Designated States (Regional): AT DE ES FR GB IT SE

US 4963958 A 9

EP 394001 A3 10

FI 93074 B H04N-009/77 Previous Publ. patent FI 9001856

CN 1023540 C H04N-009/77

EP 394001 B1 E 11 H04N-009/64

Designated States (Regional): AT DE DK ES FR GB IT SE

DE 69023801 E H04N-009/64 Based on patent EP 394001

ES 2080794 T3 H04N-009/64 Based on patent EP 394001

CA 2010663 C E H04N-005/44

KR 159936 B1 H04N-009/64

...Abstract (Equivalent): and second (70) peaking circuits, wherein said  
second luminance peaking circuit (70) exhibits peaking in a frequency  
region higher (204) than that (202) of said fir luminance peaking  
circuit (52...

...Abstract (Equivalent): The chrominance input signal is subjected to pre

- **distortion** (de-peak) to correct for sideband amplitude distortion in the chrominance peaking filter of the receiver thus preventing colour distortion in displayed images. The luminance...

5/3,K/12 (Item 12 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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008397170 \*\*Image available\*\*  
WPI Acc No: 1990-284171/199038  
XRPX Acc No: N90-219119

**Adaptive pre - distortion circuit for digital transmission - has demodulated output compared with input and interface with counter determining centre of gravity of constellation for error adjust**  
Patent Assignee: PHILIPS GLOEILAMPENFAB NV (PHIG ); LAB ELECTRONIQUE PHILIPS (PHIG ); US PHILIPS CORP (PHIG )  
Inventor: KARAM G; SARI H  
Number of Countries: 009 Number of Patents: 009  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 387948	A	19900919	EP 90200548	A	19900308	199038 B
AU 9051286	A	19900920				199045
FR 2644638	A	19900921				199045
CA 2011837	A	19900914				199048
JP 2279028	A	19901115	JP 9060895	A	19900312	199101
US 5148448	A	19920915	US 90494088	A	19900314	199240
AU 641913	B	19931007	AU 9051286	A	19900313	199346
EP 387948	B1	19940810	EP 90200548	A	19900308	199431
DE 69011364	E	19940915	DE 611364	A	19900308	199436
			EP 90200548	A	19900308	

Priority Applications (No Type Date): FR 893306 A 19890314

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 387948	A				
					Designated States (Regional): DE FR GB IT SE
US 5148448	A		17	H04L-025/49	
AU 641913	B			H04L-027/36	patent AU 9051286
EP 387948	B1 F	21		H03F-001/32	
					Designated States (Regional): DE FR GB IT SE
DE 69011364	E			H03F-001/32	Based on patent EP 387948

**Adaptive pre - distortion circuit for digital transmission...**

...Abstract (Basic): A **predistortion** circuit (11) transmits inputs at a suitable level for a constellation, synchronised by clock pulses, with the aid of a modulator (14) and power amplifier...

...An interface (22) backed by an accumulator/counter (21) determines the centre of gravity of each constellation mark and calculates a mean error to modify **predistortion** .

...Abstract (Equivalent): Adaptive **predistortion** circuit with memory for a digital transmission system which transmits input data associated with levels of a signal constellation C and which occur at the...

...of a modulator (14) and a power amplifier (15) that distorts the signal by creating smeared spots (clouds) in the constellation, the circuit comprising: a **predistortion** circuit (11) for predistorting in the

reverse sense the in-phase and quadrature input data symbols  $a_n = (a'_n, a''_n)$  prior to their entering the power amplifier in order to transmit expected levels, the **predistortion** circuit simultaneously taking into account  $L$  received input symbols  $a_{n+(L-1)/2} \dots a_{n-(L-1)/2}$  which are temporarily stored in a set (10) of input shift registers, and an adaptation circuit (19) for continuously adapting the **predistortion** circuit (11) to the stream of input data symbols in response to a demodulation (16) of the stream of transmitted data symbols by means of...

...an interface circuit (22) that employs an adaptation algorithm, characterised in that the adaptation circuit (19) comprises, inserted between the comparator circuit (20) and the **predistortion** circuit (11), a set (21) of counters/accumulators which determine the centre of gravity of each smeared spot (cloud) of the received constellation by calculating a set of mean errors that is used to adapt the **predistortion** circuit (11), the adaptive **predistortion** circuit with memory further including a first transmit filter  $F_e$  (131,132) located before the modulator (14) operating on the in-phase and quadrature paths...

...paths and in a manner such that the product of the filtering performed by the first and second filters  $F_e$  and  $F_r$  corresponds with a **Nyquist** filtering...

...Abstract (Equivalent): The adaptive **predistortion** circuit with a memory includes a set (10) of input registers storing various consecutive data symbols a **predistortion** circuit (11) for predistorting the data of the consecutive data symbols before they pass through a modulator (14) and then through an amplifier (15) and...

...which in response to a demodulation (16,17(1),17(2),18(1),18(2)) of the stream of transmitted data symbols continuously adapts the **predistortion** circuit (11) to the stream of input data symbols. The adaptation circuit (19) includes a set (21) of counters/accumulators which determine the centre of gravity of the smeared spots (clouds) created by the distortion by calculating a set of errors that is used for adapting the **predistortion** circuit (11). Pref. the **predistortion** circuit is a random access memory. In order to reduce the size of this random access memory the symmetry of the constellation is used and...

5/3,K/13 (Item 13 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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007586957 \*\*Image available\*\*  
WPI Acc No: 1988-220889/198832  
XRPX Acc No: N88-168450

Pre - distortion of quaternary digital base band signals - having symbols suppressed digitally during part of each period so that transmission channel approximates to Nyquist system

Patent Assignee: KABELMETAL ELECTRO GMBH (GUTE )

Inventor: BESSAI H; LOREK W

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 3701866	A	19880804	DE 3701866	A	19870123	198832 B

Priority Applications (No Type Date): DE 3701866 A 19870123

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes  
DE 3701866 A 7

Pre - distortion of quaternary digital base band signals...

...having symbols suppressed digitally during part of each period so that transmission channel approximates to Nyquist system

...Abstract (Basic): The ratio of the suppression period to the symbol period is selected so that the total transmission channel including the predistortion approximates to a Nyquist system...

...ADVANTAGE - Digital predistortion is simpler than complex and technically demanding analog filter producing  $x/\sin x$  characteristic normally used which requires accurate setting up procedures due to tolerance problems...

...Title Terms: NYQUIST ;

5/3,K/14 (Item 14 from file: 347)  
DIALOG(R) File 347:JAPIO  
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06428130 \*\*Image available\*\*  
LINEAR DISTORTION COMPENSATION CIRCUIT

PUB. NO.: 2000-013695 [JP 2000013695 A]  
PUBLISHED: January 14, 2000 (20000114)  
INVENTOR(s): OTAKE TOSHIYA  
APPLICANT(s): NEC CORP  
APPL. NO.: 10-177829 [JP 98177829]  
FILED: June 24, 1998 (19980624)

#### ABSTRACT

...by providing 1st and 2nd compensation filters which divide a signal of a baseband band before modulation into two orthogonally crossing signals and also perform pre - distortion compensation.

SOLUTION: An input signal is subjected to A/D conversion in an A/D converter 1, an obtained signal of baseband band is divided into two signals that are crossed at FIR filters 2 and 3 and also the two divided signals are subjected to pre - distortion compensation for linear distortion that takes place after modulation. A Pythagorean converter 4 extracts a phase information signal and an amplitude information signal from the...

?

File 2:INSPEC 1969-2004/Mar W3  
(c) 2004 Institution of Electrical Engineers  
File 6:NTIS 1964-2004/Mar W4  
(c) 2004 NTIS, Intl Cpyrght All Rights Res  
File 8:Ei Compendex(R) 1970-2004/Mar W3  
(c) 2004 Elsevier Eng. Info. Inc.  
File 34:SciSearch(R) Cited Ref Sci 1990-2004/Mar W3  
(c) 2004 Inst for Sci Info  
File 35:Dissertation Abs Online 1861-2004/Feb  
(c) 2004 ProQuest Info&Learning  
File 65:Inside Conferences 1993-2004/Mar W4  
(c) 2004 BLDSC all rts. reserv.  
File 94:JICST-EPlus 1985-2004/Mar W2  
(c)2004 Japan Science and Tech Corp(JST)  
File 95:TEME-Technology & Management 1989-2004/Mar W2  
(c) 2004 FIZ TECHNIK  
File 99:Wilson Appl. Sci & Tech Abs 1983-2004/Feb  
(c) 2004 The HW Wilson Co.  
File 144:Pascal 1973-2004/Mar W3  
(c) 2004 INIST/CNRS  
File 233:Internet & Personal Comp. Abs. 1981-2003/Sep  
(c) 2003 EBSCO Pub.  
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec  
(c) 1998 Inst for Sci Info  
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13  
(c) 2002 The Gale Group  
File 603:Newspaper Abstracts 1984-1988  
(c)2001 ProQuest Info&Learning  
File 483:Newspaper Abs Daily 1986-2004/Mar 30  
(c) 2004 ProQuest Info&Learning

Set	Items	Description
S1	74584	NYQUIST OR FIR OR FINITE() IMPULSE() RESPONS?
S2	2701	(PREEQUALI? OR PRE() EQUALI? OR PREDISTORTION OR PRE() DISTORTION)
S3	64	S1 AND S2
S4	53	S3 AND (FILTER? OR MODEM? ? OR MODULAT?(3N) DEMODULAT?)
S5	8	S4 AND (WEIGHT? ? OR TAPS)
S6	34	RD S4 (unique items)
S7	24	S6 NOT PY>2000
S8	2	S5 AND S7
S9	22	S7 NOT S8
S10	8583	AU=(QIAN, X? OR QIAN X? OR TRAN, D? OR TRAN D? OR SAID, A? OR SAID A?) OR CO=INTEL
S11	0	S10 AND S1 AND S2

8/3,K/1 (Item 1 from file: 2)  
DIALOG(R)File 2:INSPEC  
(c) 2004 Institution of Electrical Engineers. All rts. reserv.

6880062 INSPEC Abstract Number: B2001-05-6150D-001  
Title: Pre - equalization for MIMO wireless channels with delay spread  
Author(s): Sampath, H.; Bolcskei, H.; Paulraj, A.J.  
Author Affiliation: Inf. Syst. Lab., Stanford Univ., CA, USA  
Conference Title: Vehicular Technology Conference Fall 2000. IEEE VTS  
Fall VTC2000. 52nd Vehicular Technology Conference (Cat. No.00CH37152)  
Part vol.3 p.1175-8 vol.3  
Publisher: IEEE, Piscataway, NJ, USA  
Publication Date: 2000 Country of Publication: USA 6 vol. 3040 pp.  
ISBN: 0 7803 6507 0 Material Identity Number: XX-2000-02569  
U.S. Copyright Clearance Center Code: 0 7803 6507 0/2000/\$10.00  
Conference Title: Vehicular Technology Conference Fall 2000. IEEE VTS  
Fall VTC2000. 52nd Vehicular Technology Conference  
Conference Sponsor: IEEE Boston Sect.; IEEE Vehicular Technol. Soc  
Conference Date: 24-28 Sept. 2000 Conference Location: Boston, MA, USA  
Language: English  
Subfile: B  
Copyright 2001, IEE

Title: Pre - equalization for MIMO wireless channels with delay spread  
Abstract: We consider a downlink finite impulse response ( FIR )  
multi-input multi-output (MIMO) wireless channel with L taps . A is shown  
that such a channel can be pre - equalized with an FIR MIMO transmit  
filter with only L taps , if the angle spread due to the different  
multipaths is sufficiently large at the transmitter. The filter taps  
are derived for the cases where the transmitter has perfect and partial  
channel knowledge, respectively. Finally, we present a pre- filter  
structure which converts the available frequency diversity into spatial  
diversity. The resulting spatial diversity can then be exploited using  
conventional receivers designed for frequency-flat...

...Descriptors: filtering theory...

... FIR filters ;  
Identifiers: pre - equalization ; FIR MIMO wireless channels...  
... FIR MIMO transmit filter ; ...  
... filter taps ; ...  
...pre- filter structure

8/3,K/2 (Item 2 from file: 2)  
DIALOG(R)File 2:INSPEC  
(c) 2004 Institution of Electrical Engineers. All rts. reserv.

6083489 INSPEC Abstract Number: B9812-3120B-011  
Title: An analog EPR4 read channel with an FDTS detector  
Author(s): Wei, D.C.; Sun, D.Q.; Abidi, A.A.  
Author Affiliation: Dept. of Electr. Eng., California Univ., Los Angeles,  
CA, USA  
Conference Title: ICC '98. 1998 IEEE International Conference on  
Communications. Conference Record. Affiliated with SUPERCOMM'98. (Cat.  
No.98CH36220) Part vol.2 p.678-82 vol.2  
Publisher: IEEE, New York, NY, USA

Publication Date: 1998 Country of Publication: USA 3 vol. xxxvii+1838  
pp.  
ISBN: 0 7803 4788 9 Material Identity Number: XX98-01605  
U.S. Copyright Clearance Center Code: 0 7803 4788 9/98/\$10.00  
Conference Title: ICC '98 1998 IEEE International Conference on  
Communications. Conference Record  
Conference Date: 7-11 June 1998 Conference Location: Atlanta, GA, USA  
Language: English  
Subfile: B  
Copyright 1998, IEE

Abstract: A new read channel architecture is proposed, which uses **EPR4 pre - equalization** to simplify the hardware required in an all-analog circuit implementation of an FDTS  $\tau=2$  detector and its associated timing recovery. The main concept is that by transforming the channel characteristics into an **EPR4** target, the **FIR filters** required in the DFE need only be a few **taps** long, and the clock may be recovered from the **EPR4 pre - equalized** data before it enters the DFE. The FDTS  $\tau=2$  performance is obtained from a  $\tau=1$  implementation, accompanied by an error-pattern identifier. This...

...Descriptors: **FIR filters** ;

...Identifiers: **EPR4 pre - equalization** ; ...

... **FIR filters** ;

9/3,K/1 (Item 1 from file: 2)  
DIALOG(R)File 2:INSPEC  
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6867133 INSPEC Abstract Number: B2001-04-6250F-246  
**Title: A digital carrier synthesizer and modulator for WCDMA basestation**  
Author(s): Kosunen, M.; Vankka, J.; Halonen, K.  
Author Affiliation: Lab. for Electron. Circuit Design, Helsinki Univ. of Technol., Espoo, Finland  
Conference Title: NORSIG2000. Nordic Signal Processing Symposium p. 93-6  
Publisher: Linkoping Univ, Linkoping, Sweden  
Publication Date: 2000 Country of Publication: Sweden viii+516 pp.  
ISBN: 91 7219 789 7 Material Identity Number: XX-2001-00165  
Conference Title: NORSIG2000. Nordic Signal Processing Symposium  
Conference Date: 13-15 June 2000 Conference Location: Vildmarkshotellet Kolmarden, Sweden  
Language: English  
Subfile: B  
Copyright 2001, IEE

Abstract: A multicarrier QAM modulator for the wideband code division multiple access (WCDMA) basestation has been designed. The multicarrier modulator performs pulse shaping filtering for four baseband I and Q data streams. The filtered data is interpolated in three stages each interpolating with a factor of two. The modulation of four independent carriers is performed with the Numerically Controlled...

... multicarrier output is formed by summation of the modulated carriers. The SINC-attenuation effect of the D/A-converter is canceled by an inverse-SINC predistortion filter. The goal of the design process was to make the performance of the modulator limited by the 14-bit D/A-converter which can be...

...Descriptors: FIR filters ;  
...Identifiers: pulse shaping filtering ; ...

...inverse SINC predistortion filter ;

9/3,K/2 (Item 2 from file: 2)  
DIALOG(R)File 2:INSPEC  
(c) 2004 Institution of Electrical Engineers. All rts. reserv.

6762599 INSPEC Abstract Number: B2000-12-6150D-051  
**Title: A filterbank structure for voice-band PCM channel pre-equalization**  
Author(s): Alagha, N.S.; Kabal, P.  
Author Affiliation: Dept. of Electr. & Comput. Eng., McGill Univ., Montreal, Que., Canada  
Conference Title: 2000 IEEE International Conference on Acoustics, Speech, and Signal Processing. Proceedings (Cat. No.00CH37100) Part vol.5 p.2793-6 vol.5  
Publisher: IEEE, Piscataway, NJ, USA  
Publication Date: 2000 Country of Publication: USA 6 vol. lxxx+3906 pp.  
ISBN: 0 7803 6293 4 Material Identity Number: XX-2000-01778  
U.S. Copyright Clearance Center Code: 0 7803 6293 4/2000/\$10.00  
Conference Title: Proceedings of 2000 International Conference on Acoustics, Speech and Signal Processing

Conference Sponsor: IEEE; Signal Process. Soc  
Conference Date: 5-9 June 2000 Conference Location: Istanbul, Turkey  
Language: English  
Subfile: B  
Copyright 2000, IEE

**Title:** A filterbank structure for voice-band PCM channel pre-equalization

**Abstract:** A non-maximally decimated filterbank structure for pre-equalizing channels with intersymbol interference (ISI) is investigated. The impulse response of the channel is assumed to be known at the transmitter. Compared with the classical Tomlinson-Harashima (1971) precoding technique, the proposed pre-equalizer compensates for the channel without increasing the number of the received signal levels (channel alphabet). The proposed technique does not require the channel to be minimum-phase. The filterbank structure adds redundancy to the input signal to compensate for the channel ISI while keeping the transmitted power bounded. The proposed pre-equalization is particularly useful for data transmission over voice-band PCM channels. The upstream PCM channel is bandlimited, causing severe ISI at the output of the front-end receiver filter. By using the pre-equalizer at the transmitter, channel ISI can be mitigated.

...Descriptors: channel bank filters ; ...

... FIR filters ;

...Identifiers: voice-band PCM channel pre-equalization ; ...

...non-maximally decimated filterbank structure...

...front-end receiver filter ; ...

... FIR filter ;

9/3,K/3 (Item 3 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

6714962 INSPEC Abstract Number: B2000-11-6250F-012

**Title:** Higher order adaptive filter based predistortion for nonlinear distortion compensation of radio over fiber links

**Author(s):** Fernando, X.N.; Sesay, A.B.

**Author Affiliation:** TRLabs, Calgary, Que., Canada

**Conference Title:** 2000 IEEE International Conference on Communications. ICC 2000. Global Convergence Through Communications. Conference Record Part vol.1 p.367-71 vol.1

**Publisher:** IEEE, Piscataway, NJ, USA

**Publication Date:** 2000 **Country of Publication:** USA 3 vol. xxxii+1814 pp.

**ISBN:** 0 7803 6283 7 **Material Identity Number:** XX-1999-03416

**U.S. Copyright Clearance Center Code:** 0 7803 6283 7/2000/\$10.00

**Conference Title:** Proceedings of IEEE International Conference on Communications

**Conference Date:** 18-22 June 2000 **Conference Location:** New Orleans, LA, USA

**Language:** English

**Subfile:** B

**Copyright 2000, IEE**

**Title:** Higher order adaptive filter based predistortion for nonlinear distortion compensation of radio over fiber links

...Abstract: fiber (ROF) links in a wireless network is its limited dynamic range due to 'non-linear distortions' (NLD). In this paper a higher

order adaptive filter based modeling and predistortion scheme is proposed to compensate this NLD. The filter is adapted from the distortions of vector-modulated symbols, so that no in-depth knowledge of physical link parameters is needed. Experimental and simulation results show that a third order filter accurately models the ROF link while a second order filter adequately compensates for the phase nonlinearity. The power handling capability of the laser diode is the upper limit in this approach.

Descriptors: adaptive filters ; ...

... filtering theory...

... FIR filters ;

Identifiers: higher order adaptive filter based predistortion ; ...

...third order filter ; ...

...second order filter ; ...

...higher order FIR adaptive filter

9/3,K/4 (Item 4 from file: 2)

DIALOG(R)File 2:INSPEC

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6607101 INSPEC Abstract Number: B2000-07-1265H-012

Title: Digital-to-RF conversion for a vector modulator

Author(s): Sorace, R.

Author Affiliation: Hughes Space & Commun. Co., El Segundo, CA, USA

Journal: IEEE Transactions on Communications vol.48, no.4 p.540-2

Publisher: IEEE,

Publication Date: April 2000 Country of Publication: USA

CODEN: IECMBT ISSN: 0090-6778

SICI: 0090-6778(200004)48:4L.540:DCVM;1-#

Material Identity Number: I203-2000-005

U.S. Copyright Clearance Center Code: 0090-6778/2000/\$10.00

Language: English

Subfile: B

Copyright 2000, IEE

Abstract: Digital technology lacks sufficient speed to support many high data rate applications at microwave frequencies. This is unfortunate since areas such as higher order modulation , predistortion , equalization, and demodulation could benefit in flexibility, modularity, and performance from digital architectures. However, use of radio frequency microwave technology permits the implementation of digital functions at these higher speeds and frequencies. This paper describes the implementation of a nonrecursive ( finite - impulse response ) filter in microwave technology.

...Descriptors: FIR filters ; ...

...microwave filters ;

...Identifiers: nonrecursive filter

9/3,K/5 (Item 5 from file: 2)

DIALOG(R)File 2:INSPEC

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5262229 INSPEC Abstract Number: B9606-6250G-032

**Title: Uplink-noise limited satellite channels**

Author(s): Wolcott, T.J.; Osborne, W.P.  
Author Affiliation: New Mexico State Univ., NM, USA  
Conference Title: MILCOM 95. Universal Communications. Conference Record  
(Cat. No.95CH35750) Part vol.2 p.717-21 vol.2  
Publisher: IEEE, New York, NY, USA  
Publication Date: 1995 Country of Publication: USA 3 vol. xxxvii+1291  
pp.  
ISBN: 0 7803 2489 7 Material Identity Number: XX95-02927  
U.S. Copyright Clearance Center Code: 0 7803 2489 7/95/\$4.00  
Conference Title: Proceedings of MILCOM '95  
Conference Sponsor: IEEE; IEEE Commun. Soc.; Armed Forces Commun. &  
Electron. Assoc  
Conference Date: 5-8 Nov. 1995 Conference Location: San Diego, CA, USA  
Language: English  
Subfile: B  
Copyright 1996, IEE

...Abstract: transmitted signal constellation can be pre-distorted to take into account the effect of the nonlinearity in the down-link limited channel, no amount of **pre - distortion** will solve the problems encountered when the majority of the noise is present before the nonlinearity. Instead, the receiver must be modified to reflect the...

... the nonlinearity on Gaussian noise. Under three assumptions-there is no downlink-noise present, the downlink channel is wideband relative to the data, and the **filter** proceeding the nonlinearity meets both matched **filter** and **Nyquist** requirements-such modifications can be made based on the nature of the nonlinearity. By mapping the ideal decision region through the nonlinearity, performance almost identical...

...Descriptors: matched **filters** ;

...Identifiers: matched **filter** ; **Nyquist** requirements

9/3,K/6 (Item 6 from file: 2)  
DIALOG(R)File 2:INSPEC  
(c) 2004 Institution of Electrical Engineers. All rts. reserv.

5131735 INSPEC Abstract Number: B9601-6250F-090

**Title: Multiuser blind channel estimation and spatial channel pre - equalization**

Author(s): Hui Liu; Guanghan Xu  
Author Affiliation: Dept. of Electr. & Comput. Eng., Texas Univ., Austin, TX, USA

Conference Title: 1995 International Conference on Acoustics, Speech, and Signal Processing. Conference Proceedings (Cat. No.95CH35732) Part vol.3 p.1756-9 vol.3

Publisher: IEEE, New York, NY, USA  
Publication Date: 1995 Country of Publication: USA 5 vol. 3662 pp.  
ISBN: 0 7803 2431 5  
U.S. Copyright Clearance Center Code: 0 7803 2431 5/94/\$4.00  
Conference Title: 1995 International Conference on Acoustics, Speech, and Signal Processing  
Conference Sponsor: Signal Process. Soc. IEEE  
Conference Date: 9-12 May 1995 Conference Location: Detroit, MI, USA  
Language: English  
Subfile: B  
Copyright 1995, IEE  
**Title: Multiuser blind channel estimation and spatial channel pre - equalization**

...Abstract: which is capable of resolving a multiuser system without the use of training sequence or any input statistics. For downlink, we propose a spatial channel pre - equalization scheme which simultaneously eliminates the intersymbol interference (ISI) and the co-channel interference (CCI) for all users using FIR filters . Both algorithms were validated by RF experiments using the smart antenna testbed developed in the University of Texas at Austin.

...Descriptors: FIR filters ;

...Identifiers: spatial channel pre - equalization ; ...

... FIR filters ;

9/3,K/7 (Item 7 from file: 2)

DIALOG(R)File 2:INSPEC

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4932846 INSPEC Abstract Number: B9506-6250-010, C9506-3370H-002

Title: A neural network approach to data predistortion with memory in digital radio systems

Author(s): Benvenuto, N.; Piazza, F.; Uncini, A.

Author Affiliation: Dip. di Elettronica e Inf., Padova Univ., Italy

p.232-6 vol.1

Publisher: IEEE, New York, NY, USA

Publication Date: 1993 Country of Publication: USA 3 vol. 1974 pp.

ISBN: 0 7803 0950 2

U.S. Copyright Clearance Center Code: 0 7803 0950 2/93/\$3.00

Conference Title: Proceedings of ICC '93 - IEEE International Conference on Communications

Conference Sponsor: IEEE Commun. Soc.; IEEE Switzerland Sect

Conference Date: 23-26 May 1993 Conference Location: Geneva, Switzerland

Language: English

Subfile: B C

Copyright 1995, IEE

Title: A neural network approach to data predistortion with memory in digital radio systems

...Abstract: a neural network with memory. It is shown that, by extending the optimization algorithm of back-propagation to complex signals and with neurons modeled as finite - impulse - response ( FIR ) filters , the proposed algorithm determines automatically the predistorter with the objective that the overall transmitter behaves as a linear system with a prescribed pulse shape. The...

...Descriptors: FIR filters ;

Identifiers: finite impulse response filters ; ...

...data predistortion ; ...

... FIR ;

9/3,K/8 (Item 8 from file: 2)

DIALOG(R)File 2:INSPEC

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4907458 INSPEC Abstract Number: B9505-3120B-020

Title: Parallelism in analog and digital PRML magnetic disk read channel equalizers

Author(s): Uehara, G.T.; Gray, P.R.

Author Affiliation: Hawaii Univ., Honolulu, HI, USA  
Journal: IEEE Transactions on Magnetics vol.31, no.2 p.1174-9  
Publication Date: March 1995 Country of Publication: USA  
CODEN: IEMGAQ ISSN: 0018-9464  
U.S. Copyright Clearance Center Code: 0018-9464/95/\$04.00  
Conference Title: 5th Annual Magnetic Recording Conference (TMRC) on  
Signal Processing  
Conference Date: 14-17 Aug. 1994 Conference Location: San Diego, CA,  
USA  
Language: English  
Subfile: B  
Copyright 1995, IEE

Abstract: Analog **pre - equalization** can play an important role in the performance and monolithic implementation of high speed PRML read channels employing detection in the digital domain by reducing the number of quantization levels required in the analog-to-digital converter. The use of the 3-tap raised cosine equalizer as an analog **pre - equalizer** in a read channel employing digital adaptive equalization is examined. Following this, a parallel **filter** architecture suitable for implementation of high speed **finite - impulse response filters** (including the cosine equalizer) in both the analog and digital domain is described. This parallel **filter** architecture has been used in the analog domain in both a decimation **filter** and cosine equalizer in a prototype analog-to-digital interface and in the digital domain in a prototype digital adaptive equalizer/Viterbi sequence detector. Both...

...Descriptors: **FIR filters** ;

...Identifiers: analog **pre - equalizer** ; ...

...parallel **filter** ; **finite - impulse response filters** ; ...

...decimation **filter** ;

9/3;K/9 (Item 9 from file: 2)  
DIALOG(R)File 2:INSPEC  
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4817622 INSPEC Abstract Number: B9412-1265H-025, C9412-5180-023  
Title: A 100 MHz output rate analog-to-digital interface for PRML  
magnetic-disk read channels in 1.2  $\mu$ m CMOS  
Author(s): Uehara, G.T.; Gray, P.R.  
Author Affiliation: California Univ., Berkeley, CA, USA  
p.280-1  
Editor(s): Wuorinen, J.H.  
Publisher: IEEE, New York, NY, USA  
Publication Date: 1994 Country of Publication: USA 400 pp.  
ISBN: 0 7803 1844 7  
U.S. Copyright Clearance Center Code: 0 7803 1844 7/94/\$3.00  
Conference Title: Proceedings of IEEE International Solid-State Circuits  
Conference - ISSCC '94  
Conference Sponsor: IEEE Solid-State Circuits Council; IEEE Bay Area  
Council San Francisco Sect  
Conference Date: 16-18 Feb. 1994 Conference Location: San Francisco,  
CA, USA  
Language: English  
Subfile: B C

...Abstract: disk read channels employing digital implementations of PRML and other discrete-time signalling approaches is the analog-to-digital

(A/D) interface containing a pre- filter , sampler, and analog-to-digital converter (ADC). The pre- filter performs noise filtering , anti-aliasing, and pre - equalization prior to sampling and conversion to the digital domain. At symbol rates of 100 MHz and above, envisioned in the future, implementation of the required filtering is difficult using conventional approaches. This paper describes a filter /ADC combination that uses a switched-capacitor FIR passive sampling approach.

...Descriptors: switched capacitor filters

...Identifiers: pre- filter ; ...

...noise filtering ; ...

... pre - equalization ; ...

...switched-capacitor FIR passive sampling

9/3,K/10 (Item 10 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

4527591 INSPEC Abstract Number: B9401-6250G-002, C9401-1230D-009

Title: Performance analysis of new techniques of predistortion with memory in digital radio links

Author(s): Bernardini, A.; De Fina, S.

Author Affiliation: Dipartimento di Commun. Elettriche, Rome Univ., Italy

Journal: European Transactions on Telecommunications and Related Technologies vol.4, no.4 p.395-402

Publication Date: July-Aug. 1993 Country of Publication: Italy

CODEN: ETTTET ISSN: 1120-3862

Language: English

Subfile: B C B

Title: Performance analysis of new techniques of predistortion with memory in digital radio links

Abstract: The authors present an efficient data predistortion technique with memory applied to digital transmissions over nonlinear channels, specifically satellite links, employing QAM signal formats. The proposed technique is aimed at reducing the...

... in this case, by a nonlinear memoryless block and by two linear blocks with memory so that the predistorter itself can be realised by two FIR filters separated by a memoryless nonlinear element. As for the nonlinear block, they propose the employment of a neural net performing a typical surface reconstruction task...

...of the function inverting the nonlinearity source (in this case the high power amplifier). Performance analysis has shown a significant improvement with respect to memoryless predistortion (up to 4.5 dB); their proposal, moreover, outperforms conventional 3-stage-memory predistortion as the modulation levels increase and as the spectral shaping gets narrower.

...Identifiers: data predistortion ; ...

... FIR filters ;

9/3,K/11 (Item 11 from file: 2)

DIALOG(R)File 2:INSPEC

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03876413 INSPEC Abstract Number: B91030590, C91028707

**Title:** A new technique for the design of finite precision M-D FIR digital filters

**Author(s):** Masoud, A.A.

**Author Affiliation:** Dept. of Electr. Eng., Queen's Univ., Kingston, Ont., Canada

**Conference Title:** 1990 IEEE International Symposium on Circuits and Systems (Cat. No.90CH2868-8) p.2450-3 vol.3

**Publisher:** IEEE, New York, NY, USA

**Publication Date:** 1990 **Country of Publication:** USA 4 vol. xxxix+3289 pp.

**U.S. Copyright Clearance Center Code:** CH2868-8/90/0000-2450\$01.00

**Conference Sponsor:** IEEE

**Conference Date:** 1-3 May 1990 **Conference Location:** New Orleans, LA, USA

**Language:** English

**Subfile:** B C

**Title:** A new technique for the design of finite precision M-D FIR digital filters

**Abstract:** A method of designing M-D finite-precision FIR (finite - impulse response) digital filters is proposed. The method operates by predistorting the frequency response prior to quantization. The predistortion is designed to counteract degradation caused by the finite wordlength. The error measure used is a convex function of the filter coefficients. Such a property enables the authors to replace the time-consuming optimization techniques using direct search with the very fast techniques utilizing the first...

**Descriptors:** digital filters ;

...Identifiers: 1D filters ; ...

...2D filters ; ...

...finite precision M-D FIR digital filters ;

9/3,K/12 (Item 12 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

03624048 INSPEC Abstract Number: B90027563, C90033879

**Title:** A CMOS bit-level pipelined implementation of an FIR  $x/\sin(x)$  predistortion digital filter

**Author(s):** Lin, T.-J.; Samuelli, H.

**Author Affiliation:** Dept. of Electr. Eng., California Univ., Los Angeles, CA, USA

**Conference Title:** 1989 IEEE International Symposium on Circuits and Systems (Cat. No.89CH2692-2) p.351-4 vol.1

**Publisher:** IEEE, New York, NY, USA

**Publication Date:** 1989 **Country of Publication:** USA 3 vol. xl+2246 pp.

**U.S. Copyright Clearance Center Code:** CH2692-2/89/0000-0351\$01.00

**Conference Sponsor:** IEEE

**Conference Date:** 8-11 May 1989 **Conference Location:** Portland, OR, USA

**Language:** English

**Subfile:** B C

**Title:** A CMOS bit-level pipelined implementation of an FIR  $x/\sin(x)$  predistortion digital filter

**Abstract:** The CMOS design and implementation of an 11-tap FIR digital filter for compensating the  $\sin(x)/x$  spectrum distortion introduced by

D/A converters is presented. A throughput rate in excess of 100 MHz is projected...

...Descriptors: digital filters ;

...Identifiers: FIR ; predistortion digital filter ;

9/3,K/13 (Item 13 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

03544490 INSPEC Abstract Number: B90010694

Title: Performance analysis of digital radio links with nonlinear transmit amplifier and data predistorter with memory

Author(s): Pupolin, S.; Sarti, A.; Fu, H.

Author Affiliation: Dept. of Electron. & Inf., Padova Univ., Italy

Conference Title: IEEE International Conference on Communications. BOSTONICC/89. World Prosperity Through Communications (Cat. No.89CH2655-9) p.292-6 vol.1

Publisher: IEEE, New York, NY, USA

Publication Date: 1989 Country of Publication: USA 3 vol. xxx+1681 pp.

U.S. Copyright Clearance Center Code: CH2655-9/89/0000-0292\$01.00

Conference Sponsor: IEEE

Conference Date: 11-14 June 1989 Conference Location: Boston, MA, USA

Language: English

Subfile: B

Abstract: A method of introducing an adaptive digital predistortion circuit to compensate for the nonlinearity produced in digital radio systems by the high-power amplifier (HPA) is proposed. The method is attractive for its simplicity (two digital finite - impulse response ( FIR ) filters ) and because of the inherent adaptability to any nonlinearity. The simplicity of the predistorter is worth noting; only two parameters (  $\alpha / \text{sub } 1/$  and  $\alpha$ ...

... third-order kernel coefficients, as proposed in previous schemes. The performance gain is about 3 dB for a 64 quadrature amplitude modulation (QAM) system without predistortion and 1 dB for a system with memoryless data predistortion. The corresponding values for the 256 QAM system are 4 dB and 1.5 dB, respectively.

Descriptors: adaptive filters ; ...

...digital filters ;

...Identifiers: adaptive digital predistortion circuit...

... FIR ) filters ;

9/3,K/14 (Item 14 from file: 2)

DIALOG(R)File 2:INSPEC

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01668156 INSPEC Abstract Number: B81020843

Title: Switchable data modem design and evaluation (BPSK to 16-APK)

Author(s): Prendergast, D.; Feher, K.

Author Affiliation: Dept. of Electrical Engng., Univ. of Ottawa, Ottawa, Ont., Canada

Conference Title: Canadian Communications and Power Conference p.334-8

Publisher: IEEE, New York, NY, USA

Publication Date: 1980 Country of Publication: USA xix+492 pp.

Conference Sponsor: IEEE  
Conference Date: 15-17 Oct. 1980      Conference Location: Montreal, Que.,  
Canada  
Language: English  
Subfile: B

**Title: Switchable data modem design and evaluation (BPSK to 16-APK)**

**Abstract:** The design and evaluation results of a sixteen state amplitude phase shift keyed modem are presented. This modem is intended for use in digital transmission over cable, terrestrial microwave, and satellite systems. The design is such that maximum flexibility in digital modulation technique is achieved: it is capable of operating as a binary phase shift keyed (BPSK) and a quadrature phase shift keyed (QPSK) modem. This results in theoretical spectral efficiencies of 1, 2, and 4 bits per second per hertz respectively. The switchable characteristic of the modem operating at a bit rate of 256 kb/s in 16-APK, at 128 kb/s in QPSK and at 64 kb/s in BPSK configurations is presented. The modem is to be operated in an environment simulated by additive white Gaussian noise and interference. The premodulation filters are preceded by digital predistortion equalization filters. The transit low-pass filter is a modified fifth order Butterworth filter having a 6-dB cutoff frequency at the Nyquist frequency (32 kHz). The description of the design of all hardware building blocks is followed by a comparison of measured noise/interference values with theoretical...

...Descriptors: digital filters ; modems ;

...Identifiers: amplitude phase shift keyed modem ; ...

...premodulation filters ; ...

...digital predistortion equalization filters ;

9/3,K/15      (Item 1 from file: 8)  
DIALOG(R) File    8: Ei Compendex(R)  
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05348065    E.I. No: EIP99094764738

**Title: Redundant filterbank precoders and equalizers Part I: unification and optimal designs**

Author: Scaglione, Anna; Giannakis, Georgios B.; Barbarossa, Sergio  
Corporate Source: Univ of Rome 'La Sapienza', Roma, Italy  
Source: IEEE Transactions on Signal Processing v 47 n 7 1999. p 1988-2006  
Publication Year: 1999  
CODEN: ITPRED    ISSN: 1053-587X  
Language: English

**Title: Redundant filterbank precoders and equalizers Part I: unification and optimal designs**

**Abstract:** Transmitter redundancy introduced using filterbank precoders generalizes existing modulations including OFDM, DMT, TDMA, and CDMA schemes encountered with single- and multiuser communications. Sufficient conditions are derived to guarantee that with FIR filterbank precoders FIR channels are equalized perfectly in the absence of noise by FIR zero-forcing equalizer filterbanks, irrespective of the channel zero locations. Multicarrier transmissions through frequency-selective channels can thus be recovered even when deep fades are present. Jointly optimal transmitter-receiver filterbank designs are also developed, based on maximum output SNR and minimum mean-square error criteria under zero-forcing and fixed transmitted power constraints. Analytical performance results are presented for the zero-forcing filterbanks and

are compared with mean-square error and ideal designs using simulations.  
(Author abstract) 41 Refs.

Descriptors: Interference suppression; Intersymbol interference; Digital communication systems; Radio transmitters; **FIR filters** ; Equalizers; Transceivers; Time division multiple access; Code division multiple access; Time division multiplexing

Identifiers: Transmitter redundancy; **Filterbanks** ; Precoding; **Preequalization** ; Joint transceiver optimization; Block transmissions; Intersymbol and interchip interference; Orthogonal frequency division multiplexing; Discrete multitone multiplexing; Discrete wavelets multiplexing

9/3,K/16 (Item 2 from file: 8)  
DIALOG(R)File 8:EI Compendex(R)  
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04251607 E.I. No: EIP95092853912

Title: **Multuser blind channel estimation and spatial channel pre - equalization**

Author: Liu, Hui; Xu, Guanghan

Corporate Source: Univ of Texas at Austin, Austin, TX, USA

Conference Title: Proceedings of the 1995 International Conference on Acoustics, Speech, and Signal Processing. Part 3 (of 5)

Conference Location: Detroit, MI, USA Conference Date: 19950509-19950512

E.I. Conference No.: 43559

Source: Statistical Signal and Array Processing ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings v 3 1995. IEEE, Piscataway, NJ, USA, 95CH35732. p 1756-1759

Publication Year: 1995

CODEN: IPRODJ ISSN: 0736-7791

Language: English

Title: **Multuser blind channel estimation and spatial channel pre - equalization**

...Abstract: which is capable of resolving a multiuser system without the use of training sequence or any input statistics. For downlink, we propose a spatial channel **pre - equalization** scheme which simultaneously eliminates the intersymbol interference (ISI) and the co-channel interference (CCI) for all users using **FIR filters** . Both algorithms were validated by RF experiments using the smart antenna testbed developed in the University of Texas at Austin. (Author abstract) 15 Refs.

Descriptors: Antenna arrays; Radio communication; Communication channels (information theory); Time division multiplexing; Digital **filters** ; Signal interference; Algorithms; Estimation; Statistical methods; Intersymbol interference

Identifiers: Smart antenna systems; Uplink channels; Downlink channels; Co-channel interference; **FIR channels**

9/3,K/17 (Item 3 from file: 8)  
DIALOG(R)File 8:EI Compendex(R)  
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03101034 E.I. Monthly No: EI9108091080

Title: **A data predistortion technique with memory for QAM radio systems.**

Author: Karam, Georges; Sari, Hikmet

Corporate Source: Lab d'Electron Philips, Limeil-Brevannes, France

Source: IEEE Transactions on Communications v 39 n 2 Feb 1991 p 336-344  
Publication Year: 1991  
CODEN: IECMBT ISSN: 0096-1965  
Language: English

**Title: A data predistortion technique with memory for QAM radio systems.**

**Abstract:** The authors present an efficient data predistortion technique with memory for compensation of high-power amplifier (HPA) nonlinearities in digital microwave radio systems employing quadrature amplitude modulation (QAM) signal formats. A practical...

...16-, 64-, and 256-QAM signal constellations, it is shown that the proposed technique achieves a considerably higher performance than that of conventional memoryless data predistortion or of the predistortion technique with memory based on finite-order inverses of nonlinear systems. Specifically, numerical results show that the proposed technique achieves a gain that is in excess of 2 dB over conventional memoryless data predistortion. 14 Refs.

**Identifiers:** DATA PREDISTORTION WITH MEMORY; QAM RADIO SYSTEMS; NYQUIST FILTERING; DIGITAL MICROWAVE RADIO; VOLTERRA SERIES; NONLINEARITY COMPENSATION

9/3,K/18 (Item 1 from file: 34)  
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
(c) 2004 Inst for Sci Info. All rts. reserv.

07565231 Genuine Article#: 182UC No. References: 25  
**Title:** Filterbank transceivers optimizing information rate in block transmissions over dispersive channels  
**Author(s):** Scaglione A (REPRINT); Barbarossa S; Giannakis GB  
**Corporate Source:** UNIV ROMA LA SAPIENZA, DEPT INFO COM/I-00184 ROME//ITALY/ (REPRINT); UNIV VIRGINIA, DEPT ELECT ENGN/CHARLOTTESVILLE//VA/22903  
**Journal:** IEEE TRANSACTIONS ON INFORMATION THEORY, 1999, V45, N3 (APR), P 1019-1032  
**ISSN:** 0018-9448 **Publication date:** 19990400  
**Publisher:** IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC, 345 E 47TH ST, NEW YORK, NY 10017-2394  
**Language:** English **Document Type:** ARTICLE (ABSTRACT AVAILABLE)

**Title:** Filterbank transceivers optimizing information rate in block transmissions over dispersive channels

**Abstract:** Optimal finite impulse response (FIR) transmit and receive filterbanks are derived for block-based data transmissions over frequency-selective additive Gaussian noise (AGN) channels by maximizing mutual information subject to a fixed transmit-power constraint. Both FIR and pole-zero channels are considered. The inherent flexibility of the proposed transceivers is exploited to derive, as special cases, zero-forcing (ZF) and minimum mean-square error receive filterbanks. The transmit filterbank converts transmission over a frequency-selective fading channel, affected by additive colored noise, into a set of independent flat fading subchannels with uncorrelated noise samples...

9/3,K/19 (Item 2 from file: 34)  
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
(c) 2004 Inst for Sci Info. All rts. reserv.

07381636    Genuine Article#: 158PJ    No. References: 40  
**Title: Complex-valued neural networks with adaptive spline activation function for digital radio links nonlinear equalization**  
Author(s): Uncini A (REPRINT) ; Vecchi L; Campolucci P; Piazza F  
Corporate Source: UNIV ANCONA, DIPARTIMENTO ELETTRON & AUTOMAT/I-60131 ANCONA//ITALY/ (REPRINT)  
Journal: IEEE TRANSACTIONS ON SIGNAL PROCESSING, 1999, V47, N2 (FEB), P 505-514 .  
ISSN: 1053-587X    Publication date: 19990200  
Publisher: IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC, 345 E 47TH ST, NEW YORK, NY 10017-2394  
Language: English    Document Type: ARTICLE    (ABSTRACT AVAILABLE)

...Abstract: that is able to improve the generalization capabilities using few training samples, Due to its low architectural complexity (low overhead with respect to a simple **FIR filter** ), this network can be used to cope with several nonlinear DSP problems at a high symbol rate.

In particular, this work addresses the problem of...  
...Identifiers--MULTILAYER FEEDFORWARD NETWORKS; BACKPROPAGATION ALGORITHM; INTERSYMBOL INTERPOLATION; TRANSMIT AMPLIFIERS; LEARNING-CURVES; PREDISTORTION; SYSTEMS

9/3,K/20        (Item 1 from file: 35)  
DIALOG(R)File 35:Dissertation Abs Online  
(c) 2004 ProQuest Info&Learning. All rts. reserv.

01283368    ORDER NO: AADNN-73767  
**ADAPTIVE LINEAR AND NONLINEAR FILTERS (ADAPTIVE FILTERS , LINEAR FILTERS )**  
Author: GAO, (FRANK) XIANG YANG  
Degree: PH.D.  
Year: 1991  
Corporate Source/Institution: UNIVERSITY OF TORONTO (CANADA) (0779)  
Source: VOLUME 53/12-B OF DISSERTATION ABSTRACTS INTERNATIONAL.  
PAGE 6458. 153 PAGES  
ISBN: 0-315-73767-0

**ADAPTIVE LINEAR AND NONLINEAR FILTERS (ADAPTIVE FILTERS , LINEAR FILTERS )**

The research work presented in this thesis advances the state-of-the-art of adaptive filtering by developing an efficient adaptive linear cascade IIR filter , proposing four adaptive linearization schemes, introducing adaptive nonlinear recursive state-space (ANRSS) filters , and applying the algorithms to loudspeaker measurements.

Adaptive cascade IIR filters have the advantages of easy stability monitoring and good sensitivity performance. A novel technique of backpropagating the desired signal is proposed for a general cascade structure, which is then applied to a cascade IIR filter . The equation-error formulation is shown to be a special case of the backpropagation formulation.

Inevitable nonlinearities in systems intended to function linearly sometimes severely impair system performance. Three adaptive linearization schemes are devised to reduce nonlinearities in these systems using adaptive FIR filters . They achieve linearization by canceling nonlinearity at the system output, post-distorting the signal, or pre-distorting the signal. The pre - distortion scheme is applied to linearize a loudspeaker model.

The adaptive nonlinear filters previously reported are almost all of FIR type. Although they have some nice properties, their computation requirements are impractical for those applications with long impulse responses. Hence, ANRSS filters are introduced as alternatives and efficient methods for gradient computation are developed to facilitate further their real-time application. The stability and the convergence of the filters are studied.

Measurements are performed on a loudspeaker system. Solutions of some problems arising from the practical data are proposed. Then, the algorithms developed in...

9/3,K/21 (Item 2 from file: 35)  
DIALOG(R)File 35:Dissertation Abs Online  
(c) 2004 ProQuest Info&Learning. All rts. reserv.

1016526 ORDER NO: AADDX-82513  
A VEHICLE-MOUNTED TERMINAL FOR EUROPEAN SATELLITE-MOBILE RADIO SERVICES:  
DEVELOPMENT OF A LOW-COST VEHICLE-MOUNTED EARTH STATION FOR PROJECTED  
SATELLITE-MOBILE SERVICES IN EUROPE AND CONSIDERATIONS FOR ACHIEVEMENT OF  
MULTIPLE SERVICE ACCESS CAPABILITY FOR VOICE AND DATA COMMUNICATIONS  
Author: WILLIAMS, DAVID HUGH  
Degree: PH.D  
Year: 1988  
Corporate Source/Institution: UNIVERSITY OF BRADFORD (UNITED KINGDOM) (0401)  
Source: VOLUME 49/06-B OF DISSERTATION ABSTRACTS INTERNATIONAL.  
PAGE 2327. 210 PAGES

...also included. A method of modulation by direct digital synthesis is then described, which offers flexibility in bit rates and modulation schemes, together with optional pre - distortion for non-linear power amplifiers. This technique offers enhancement to the satellite-mobile terminal and is suited to the multiple service access requirement of portable...

...following the introduction of a saturated HPA to the channel. A "proof of concept" flexible modulator was developed and used to generate mathematically pre-determined Nyquist filtered waveforms, pre-distorted in amplitude for an anticipated HPA non-linearity. Results implied that it may be possible to reduce the unacceptable degradation from saturated...

9/3,K/22 (Item 1 from file: 95)  
DIALOG(R)File 95:TEME-Technology & Management  
(c) 2004 FIZ TECHNIK. All rts. reserv.

00877166 E95031371226  
Using flexible precoding for channels with spectral nulls  
(Flexible Vorforderung fuer Kanale mit spektralen Nullstellen)  
Fischer, R  
Univ. Erlangen-Nuernberg, D  
Electronics Letters, v31, n5, pp356-358, 1995  
Document type: journal article Language: English  
Record type: Abstract  
ISSN: 0013-5194

ABSTRACT:  
Flexible precoding has been proposed for channel pre - equalisation at the transmitter side. In the Letter a slight modification of the receiver

is presented which enables the use of flexible precoding for channels with spectral nulls at DC and/or the Nyquist frequency. Simulation results covering the performance are given.

...DESCRIPTORS: BIT ERROR RATE; S N RATIO; SPECTRAL DISTRIBUTION; ZERO ROOT  
; CHANNEL CODING; TRANSFER CHARACTERISTICS; FINITE IMPULSE RESPONSE  
FILTERS ; PRE EMPHASIS

?

File 9:Business & Industry(R) Jul/1994-2004/Mar 30  
     (c) 2004 The Gale Group  
 File 15:ABI/Inform(R) 1971-2004/Mar 31  
     (c) 2004 ProQuest Info&Learning  
 File 16:Gale Group PROMT(R) 1990-2004/Mar 31  
     (c) 2004 The Gale Group  
 File 20:Dialog Global Reporter 1997-2004/Mar 31  
     (c) 2004 The Dialog Corp.  
 File 47:Gale Group Magazine DB(TM) 1959-2004/Mar 31  
     (c) 2004 The Gale group  
 File 75:TGG Management Contents(R) 86-2004/Mar W3  
     (c) 2004 The Gale Group  
 File 80:TGG Aerospace/Def.Mkts(R) 1986-2004/Mar 31  
     (c) 2004 The Gale Group  
 File 88:Gale Group Business A.R.T.S. 1976-2004/Mar 30  
     (c) 2004 The Gale Group  
 File 98:General Sci Abs/Full-Text 1984-2004/Feb  
     (c) 2004 The HW Wilson Co.  
 File 112:UBM Industry News 1998-2004/Jan 27  
     (c) 2004 United Business Media  
 File 141:Readers Guide 1983-2004/Feb  
     (c) 2004 The HW Wilson Co  
 File 148:Gale Group Trade & Industry DB 1976-2004/Mar 30  
     (c)2004 The Gale Group  
 File 160:Gale Group PROMT(R) 1972-1989  
     (c) 1999 The Gale Group  
 File 275:Gale Group Computer DB(TM) 1983-2004/Mar 31  
     (c) 2004 The Gale Group  
 File 264:DIALOG Defense Newsletters 1989-2004/Mar 31  
     (c) 2004 The Dialog Corp.  
 File 484:Periodical Abs Plustext 1986-2004/Mar W3  
     (c) 2004 ProQuest  
 File 553:Wilson Bus. Abs. FullText 1982-2004/Feb  
     (c) 2004 The HW Wilson Co  
 File 570:Gale Group MARS(R) 1984-2004/Mar 31  
     (c) 2004 The Gale Group  
 File 608:KR/T Bus.News. 1992-2004/Mar 31  
     (c)2004 Knight Ridder/Tribune Bus News  
 File 620:EIU:Viewswire 2004/Mar 30  
     (c) 2004 Economist Intelligence Unit  
 File 613:PR Newswire 1999-2004/Mar 31  
     (c) 2004 PR Newswire Association Inc  
 File 621:Gale Group New Prod.Annou.(R) 1985-2004/Mar 31  
     (c) 2004 The Gale Group  
 File 623:Business Week 1985-2004/Mar 30  
     (c) 2004 The McGraw-Hill Companies Inc  
 File 624:McGraw-Hill Publications 1985-2004/Mar 30  
     (c) 2004 McGraw-Hill Co. Inc  
 File 634:San Jose Mercury Jun 1985-2004/Mar 30  
     (c) 2004 San Jose Mercury News  
 File 635:Business Dateline(R) 1985-2004/Mar 31  
     (c) 2004 ProQuest Info&Learning  
 File 636:Gale Group Newsletter DB(TM) 1987-2004/Mar 31  
     (c) 2004 The Gale Group  
 File 647:CMP Computer Fulltext 1988-2004/Mar W3  
     (c) 2004 CMP Media, LLC  
 File 696:DIALOG Telecom. Newsletters 1995-2004/Mar 30  
     (c) 2004 The Dialog Corp.  
 File 674:Computer News Fulltext 1989-2004/Mar W3  
     (c) 2004 IDG Communications  
 File 810:Business Wire 1986-1999/Feb 28

(c) 1999 Business Wire  
File 813:PR Newswire 1987-1999/Apr 30  
(c) 1999 PR Newswire Association Inc

Set	Items	Description
S1	12	(NYQUIST OR FIR OR FINITE()IMPULSE()RESPONS?) (S) (PREEQUALI? OR PRE()EQUALI? OR PREDISTORTION OR PRE()DISTORTION)
S2	7	RD S1 (unique items)
S3	4	S2 NOT PY>2000
S4	10528	AU=(QIAN, X? OR QIAN X? OR TRAN, D? OR TRAN D? OR SAID, A? OR SAID A?) OR CO=INTEL
S5	5	S4 AND ((NYQUIST OR FIR OR FINITE()IMPULSE()RESPONS?) OR (- PREEQUALI? OR PRE()EQUALI? OR PREDISTORTION OR PRE()DISTORTIO- N))
S6	5	RD S5 (unique items)
S7	4	S6 NOT (PY>2000 OR S3)

3/3,K/1 (Item 1 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2004 The Gale Group. All rts. reserv.

05871489 Supplier Number: 53030625 (USE FORMAT 7 FOR FULLTEXT)  
**Chips: Broadcom Announces World's First Single-Chip Cable Modem Solution;  
New Chip Enables Next-Generation Cable Modems to Provide Telephony and  
Quality of Service Over the Cable Network. (Product Announcement)**  
EDGE, on & about AT&T, pNA  
Sept 28, 1998  
Language: English Record Type: Fulltext  
Article Type: Product Announcement  
Document Type: Newsletter; Trade  
Word Count: 958

... B/C compatible forward error correction (FEC) decoder in the receiver and a programmable MCNS/DVB/DAVIC FEC encoder in the transmitter. A digital demodulator, **Nyquist** filters, tracking loops, and an adaptive-decision feedback equalizer are incorporated into the receiver, and a **pre - equalizer** filter is in the transmitter.  
The chip interfaces to multiple low-cost, industry-standard CPUs, including the MIPS CPU, an architecture that was recently licensed...

3/3,K/2 (Item 1 from file: 20)  
DIALOG(R)File 20:Dialog Global Reporter  
(c) 2004 The Dialog Corp. All rts. reserv.

02873814  
**Broadcom Announces World's First Single-Chip Cable Modem Solution; New Chip  
Enables Next-Generation Cable Modems to Provide Telephony and Quality of  
Service Over the Cable Network**  
BUSINESS WIRE  
September 21, 1998  
JOURNAL CODE: WBWE LANGUAGE: English RECORD TYPE: FULLTEXT  
WORD COUNT: 1354

... FEC encoder in the transmitter. A digital demodulator, Nyquist filters, tracking loops, and an adaptive-decision feedback equalizer are incorporated into the receiver, and a **pre - equalizer** filter is in the transmitter. The chip interfaces to multiple low-cost, industry-standard CPUs, including the MIPS CPU, an architecture that was recently licensed...

3/3,K/3 (Item 1 from file: 88)  
DIALOG(R)File 88:Gale Group Business A.R.T.S.  
(c) 2004 The Gale Group. All rts. reserv.

05442401 SUPPLIER NUMBER: 62649940  
**Digital-to-RF Conversion for a Vector Modulator.**  
Sorace, Ron  
IEEE Transactions on Communications, 48, 4, 540  
April, 2000  
ISSN: 0090-6778 LANGUAGE: English RECORD TYPE: Abstract

...AUTHOR ABSTRACT: digital technology lacks sufficient speed to support many high data rate applications at microwave frequencies. This is unfortunate since areas such as higher order modulation, **predistortion**, equalization, and demodulation could benefit in flexibility, modularity, and performance from digital architectures. However, use of radio frequency

microwave technology permits the implementation of digital functions at these higher speeds and frequencies. This paper describes the implementation of a non-recursive ( **finite - impulse response** ) filter in microwave technology.

Index Terms-- **FIR** filter, modulator, **predistortion** , vector modulator.

3/3,K/4 (Item 1 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB

(c)2004 The Gale Group. All rts. reserv.

09020114 SUPPLIER NUMBER: 18754205 (USE FORMAT 7 OR 9 FOR FULL TEXT)

Demodulator with **FEC** decoder gas on-chip timing, recovery. (includes

related articles on jittering and error coding) (Cover Story)

McGoldrick, Paul

Electronic Design, v44, n18, p55(6)

Sep 3, 1996

DOCUMENT TYPE: Cover Story

ISSN: 0013-4872

LANGUAGE: English

RECORD TYPE: Fulltext; Abstract

WORD COUNT: 2851 LINE COUNT: 00230

... locked to the incoming symbol rate. The outputs are pre-equalized streams at twice the symbol rate. A square-root, raised-co-sine, low-pass **finite - impulse - response** ( **FIR** ) filter matches that of the transmission standard (one is in each of the I and Q paths) to minimize inter-symbol interference (ISI) and reduce...

?

7/3,K/1 (Item 1 from file: 160)  
DIALOG(R)File 160:Gale Group PROMT(R)  
(c) 1999 The Gale Group. All rts. reserv.

02360621  
**INTEL TRANSCEIVER EASES TRANSITION BETWEEN COAXIAL CABLE AND TWISTED-PAIR WIRING**  
News Release October 12, 1989 p. 1

...direct interface-to-attachment unit interface isolation transformers and twisted-pair filters. Plus, it supports new 10BASE-T requirements for link integrity, jabber protection and **predistortion**. This allows customers to quickly comply with the proposed 10BASE-T standard.

7/3,K/2 (Item 1 from file: 608)  
DIALOG(R)File 608:KR/T Bus.News.  
(c)2004 Knight Ridder/Tribune Bus News. All rts. reserv.

612882 Story Number: 9587 (USE FORMAT 7 OR 9 FOR FULLTEXT)  
**INFRARED TECHNOLOGY GETS NEW BURST OF ENERGY**  
Phillip Robinson  
San Jose Mercury News (California)  
Dec 07, 1997 18:26 E.T.  
DOCUMENT TYPE: Newspaper RECORD TYPE: Fulltext LANGUAGE: English  
WORD COUNT: 1536

...TEXT: sometimes get through a parallel port connection, the port most printers and some data-exchange programs use.

A newer standard called IrDA 1.1 or **FIR** (Fast IR) moves data at 4 million bits per seconds, or mbps. That is fast enough for networking, and is five times faster than a...

...equip the page-making side of your hardware. Both are the slower IrDA 1.0 models. But the JetEye Net Plus for \$400 is a **FIR** (4 mbps) device that lets you create a wireless network using Windows NT, Netware, TCP/IP and other standard operating systems.  
Puma (800-248-2795...

COMPANY NAMES: Compaq ; Extended Systems ; Hewlett Packard ; Infrared Data Association ; **Intel** ; IBM ; Knight Ridder/Tribune Business News ; Mercury News ; Microsoft ; NEC ; Philips ; Sharp ; Texas Instruments ; Toshiba ; Traveling Software

7/3,K/3 (Item 1 from file: 647)  
DIALOG(R)File 647:CMP Computer Fulltext  
(c) 2004 CMP Media, LLC. All rts. reserv.

01191642 CMP ACCESSION NUMBER: EET19990517S0002  
**VLIW experts bank on smarter software**  
Alexander Wolfe  
ELECTRONIC ENGINEERING TIMES, 1999, n 1061, PG1  
PUBLICATION DATE: 990517  
JOURNAL CODE: EET LANGUAGE: English  
RECORD TYPE: Fulltext  
SECTION HEADING: News  
WORD COUNT: 1539

... of large bodies of code. We're looking at algorithms to find out where parallelism is possible."

He noted that functions such as FFTs and **finite - impulse - response** filters do well. Surprisingly, Simar said, infinite-impulse-response filters don't do as well because of the way the delay samples move through the...

COMPANY NAMES (DIALOG GENERATED): Analog Devices Inc ; Cygnus Solutions ; DSP ; Edinburgh Portable Compilers Ltd ; Hewlett Packard ; **Intel** ; IA ; Lucent Technologies ; Metaware ; Microsoft ; Motorola Inc ; Silicon Graphics ; Sun Microsystems ; Texas Instruments Inc ; University of Illinois at Urbana Champaign

7/3,K/4 (Item 1 from file: 810)  
DIALOG(R)File 810:Business Wire  
(c) 1999 Business Wire . All rts. reserv.

0463641 BW0051

**INTEL : Native Signal Processing Roll Out Moves Forward with Introduction of NSP Library for Pentium Processor**

February 13, 1995

Byline: Business Editors/Computer Writers

**INTEL :**

...100 unique functions available in both real and complex data types as well as both single- and double-precision arithmetic.

-- Functions include vector manipulation, filters (**FIR** , IIR, LMS), Windowing, FFT/DFT, convolutions, multi-rate functions, user-defined error handlers, etc.

-- C-callable function library that currently links with applications created with...

?

File 348:EUROPEAN PATENTS 1978-2004/Mar W03

(c) 2004 European Patent Office

File 349:PCT FULLTEXT 1979-2002/UB=20040325,UT=20040318

(c) 2004 WIPO/Univentio

Set	Items	Description
S1	14734	NYQUIST OR FIR OR FINITE()IMPULSE()RESPONS?
S2	1267	(PREEQUALI? OR PRE()EQUALI? OR PREDISTORTION OR PRE()DISTO- RTION)
S3	91	S1(S)S2
S4	68	S3(S) (FILTER? OR MODEM? ? OR MODULAT?(3N)DEMODULAT?)
S5	20	S4(S) (WEIGHT? ? OR TAPS)
S6	20	IDPAT (sorted in duplicate/non-duplicate order)
S7	20	IDPAT (primary/non-duplicate records only)
S8	15	S7 NOT AD=20001221:20040331/PR
S9	0	S1(3N)S2(3N) (CONVOLUT? OR COMBIN? OR ADD OR ADDING OR UNITE OR UNITING OR MERGE OR MERGING OR JOIN? ? OR JOINING OR INTE- GRAT?)
S10	0	S1(5N)S2(5N) (CONVOLUT? OR COMBIN? OR ADD OR ADDING OR UNITE OR UNITING OR MERGE OR MERGING OR JOIN? ? OR JOINING OR INTE- GRAT?)
S11	13	S1(3N)S2
S12	13	IDPAT (sorted in duplicate/non-duplicate order)
S13	12	IDPAT (primary/non-duplicate records only)
S14	11	S13 NOT AD=20001221:20040331/PR
S15	9	S14 NOT S8
S16	4	S3 AND IC=(H04B-001/10 OR H04B-001/38 OR H04L-005/16)
S17	4	IDPAT (sorted in duplicate/non-duplicate order)
S18	4	IDPAT (primary/non-duplicate records only)
S19	3	S18 NOT (S8 OR S15)

8/3,K/1 (Item 1 from file: 348)  
DIALOG(R) File 348:EUROPEAN PATENTS  
(c) 2004 European Patent Office. All rts. reserv.

01651269

Wireless transmission using an adaptive transmit antenna array  
Drahtlose Übertragung unter Verwendung einer adaptiven Antennengruppe  
Transmission sans fil utilisant un reseau d'antennes adaptatif  
PATENT ASSIGNEE:

Motorola Energy Systems Inc., (1690910), 1303 East Algonquin Road,  
Schaumburg, IL 60196, (US), (Applicant designated States: all)

INVENTOR:

Vialle, Sandrine, 59, Rue de Cambronne, 75015 Paris, (FR)  
Whinnett, Nicholas William, 1 New Road, Chiseldon, Swindon SN4 0LX, (GB)  
Buljore, Soodesh, 6, Chemin de Montjay, 91440 Bures sur Yvette, (FR)

LEGAL REPRESENTATIVE:

Wharmby, Martin Angus (37561), Motorola Centre de Recherche, Parc  
Technologique de St. Aubin, Route de L'Orme au Merisier, Immeuble  
Columbia, 91190 Gif-sur-Yvette, (FR)

PATENT (CC, No, Kind, Date): EP 1359684 A1 031105 (Basic)

APPLICATION (CC, No, Date): EP 2002291093 020430;

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: H04B-007/06; H04B-007/08

ABSTRACT WORD COUNT: 196

NOTE:

Figure number on first page: 3 4

LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200345	1171
SPEC A	(English)	200345	4753
Total word count - document A			5924
Total word count - document B			0
Total word count - documents A + B			5924

...SPECIFICATION equalise the signals transmitted from the transmit  
antennas, so as to reduce the complexity of the mobile station. The  
system includes a Finite Impulse Response ( FIR ) filter that combines  
copies of the transmit signals with respective delays and weights  
(gains) and launches the combined signals from the transmit antennas.

In both case, such schemes attempt to make the channel look flat in  
order to...

8/3,K/2 (Item 2 from file: 348)  
DIALOG(R) File 348:EUROPEAN PATENTS  
(c) 2004 European Patent Office. All rts. reserv.

01589963

Method and device for performing adaptive predistortion  
Verfahren und Vorrichtung zur Durchführung adaptive Vorverzerrung  
Procede et dispositif pour realiser de predistortion adaptative  
PATENT ASSIGNEE:

Telefonaktiebolaget L M Ericsson (Publ), (213764), , 126 25 Stockholm,  
(SE), (Applicant designated States: all)

INVENTOR:

Kehlenbach, Werner, Eichendorffstr.57, 90491 Nurnberg, (DE)  
Hamrin, Stefan, Spiegelbacken 82, 187 65 Taby, (SE)  
Leyonhjelm, Scott, Vegagaten 22 1tr, 172 34 Sundbyberg, (SE)  
Dalipi, Spendim, Stupvagen 75, 191 42 Sollentuna, (SE)  
Klingberg, Mats, Gotaforssvagen 23, 122 66 Enskede, (SE)

LEGAL REPRESENTATIVE:

Schmidt, Steffen J., Dipl.-Ing. (70552), Wuesthoff & Wuesthoff, Patent-  
und Rechtsanwälte, Schweigerstrasse 2, 81541 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 1318643 A1 030611 (Basic)

APPLICATION (CC, No, Date): EP 2001128934 011205;

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: H04L-027/36

ABSTRACT WORD COUNT: 119

NOTE:

Figure number on first page: 1A

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200324	781
SPEC A	(English)	200324	7743
Total word count - document A			8524
Total word count - document B			0
Total word count - documents A + B			8524

...SPECIFICATION designed so as to linearize the power amplifier 22.

The data modifier 16A described above only operates on the instantaneous sample. However, introduction of a **predistortion** scheme which is dependent also on one or more previous samples could be envisaged also. Thus a memory or frequency dependence effect may be implemented...component, which can be thought of as a second table address dimension, may be calculated by a "leaky integrator" which is a low pass (IIR) **filter** with certain rise and fall times matched to the thermal nature of the amplifier 22. According to an alternative approach, a **FIR filter** implementation could be used whereby the coefficients of the **filter** are accessed from a table addressed by a function of the instantaneous amplitude of the signal. The coefficients are then multiplied with a **weight** generated from a **FIR** or **IIR filter**. A third alternative for including a memory or frequency dependency effect is the implementation of frequency equalizers preceding and following the (memoryless) data modifier 16A...

8/3,K/3 (Item 3 from file: 348)

DIALOG(R) File 348:EUROPEAN PATENTS

(c) 2004 European Patent Office. All rts. reserv.

01535467

A wideband digital predistortion linearizer for nonlinear amplifiers  
Digitaler Breitband- Vorverzerrungslinearisierer für nichtlineare  
Verstärker

Lineariseur de predistorsion numerique a large bande pour amplificateurs  
non lineaires

PATENT ASSIGNEE:

PMC-Sierra, Inc., (3385730), Suite 250, 900 E. Hamilton Avenue, Campbell,  
CA 95008, (US), (Applicant designated States: all)

INVENTOR:

Wright, Andrew S, 3741 West 35th Avenue, Vancouver, BC V6N 2N6, (CA)

Yee, Paul V, 5907 Clarendon Street, Vancouver, BC V5R 3K4, (CA)  
 Hung, Chung Y Kevin, 1902-2668 Ash Street, Vancouver, BC V5Z 4K4, (CA)  
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 PATENT (CC, No, Kind, Date): EP 1280273 A2 030129 (Basic)  
 EP 1280273 A3 030205  
 APPLICATION (CC, No, Date): EP 2002078570 000713;  
 PRIORITY (CC, No, Date): US 143570 990713; US 596142 000616  
 DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
 LU; MC; NL; PT; SE  
 EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI  
 RELATED PARENT NUMBER(S) - PN (AN):  
 EP 1203445 (EP 2000946224)  
 INTERNATIONAL PATENT CLASS: H03F-001/32  
 ABSTRACT WORD COUNT: 315

NOTE:

Figure number on first page: 3

LANGUAGE (Publication,Procedural,Application): English; English; English  
 FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200305	300
SPEC A	(English)	200305	29441
Total word count - document A			29741
Total word count - document B			0
Total word count - documents A + B			29741

...SPECIFICATION and those being read from the table 52H for use.

Figures 4A and 4B illustrate example digital circuits that may be used to implement the **predistortion filter** 52A and the IQ modulator correction circuit 52B. A variety of other well known circuits can alternatively be used. The number of **taps** N used for the **predistortion filter** 52A is a matter of design choice, but may, for example, be in the range of 5-11. Since a different set of **FIR filter** coefficients is used for each input sample of the input signal  $V_m(t)$  (indexed by power or amplitude), correction of the amplifier's wideband AM...

...is also achieved if the tap values are correctly computed. Since this is preferably a non-real-time computation process, the task of computing the **FIR** coefficient values is the responsibility of the ACPCE.

### 3.1.2.1. Integration Filter Construction

Figure 5 illustrates the construction of the integration filter 52F in a preferred embodiment. An important feature of the integration filter 52F is that...

...such, may not be accurately modeled by a linear or nonlinear function of the amplifier's past power profile.

Figure 6 illustrates a nonlinear integration **filter** kernel that may be used to overcome this problem when the wideband **predistortion** design is used with transistor technologies that exhibit nonlinear changes as a function of temperature. The nonlinear integration **filter** 52F is constructed from a bank of linear filters and a bank of multiplier stages. The input to each multiplier is the input signal magnitude...

... $x_2(t)$ ,  $x_3(t)$  ...  $x_n(t)$ , to be computed from the original input signal  $x(t)$ . Each new signal is then fed to a linear **FIR filter**. As with the basic integration **filter**, the **FIR filter** tap coefficients and delay

periods between taps are fully adjustable by the ACPCE. If each filter is regarded as an nth order kernel, the structure permits any linear or nonlinear function of the past input power profile to be computed. This permits accurate indexing into the two dimensional predistortion filter table 52H that corrects for the instantaneous distortion that is being generated by the nonlinear amplifier.

Equation 1 provides a mathematical definition of a nonlinear...

8/3,K/4 (Item 4 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
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01233542

Echo cancellation for an ADSL modem

Echounterdrückung für ein ADSL-Modem

Annulation d'écho pour un modem de ligne d'abonné numérique asymétrique

PATENT ASSIGNEE:

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INVENTOR:

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PATENT (CC, No, Kind, Date): EP 1069700 A2 010117 (Basic)

APPLICATION (CC, No, Date): EP 305711 000706;

PRIORITY (CC, No, Date): US 352813 990713

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: H04B-003/23

ABSTRACT WORD COUNT: 88

NOTE:

Figure number on first page: 4

LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

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CLAIMS A	(English)	200103	1595
SPEC A	(English)	200103	6075
Total word count - document A			7670
Total word count - document B			0
Total word count - documents A + B			7670

...SPECIFICATION including known least mean square, Kalman and recursive mean square types. Preferably, however, the modem comprises a least mean square type finite impulse response adaptive filter that may also contain a predistortion function in accordance with the present invention. The adaptive filter accordingly includes a first n-tap delay line and a recursive tap weight update section in accordance with conventional filter design. To implement the predistortion function, the adaptive filter further includes a second n-tap delay line with a filter block whose transfer function substantially matches a combined transfer function for an adaptation loop of the modem comprising the echo channel and the receive channel. The outputs of the second n-tap delay line then generate a predistortion vector for input to the recursive tap weight update section of the adaptive filter.

A more complete understanding of the method and apparatus of the present invention may be acquired by reference to the following Detailed

Description when taken...considerations to satisfy the relation (2) when there is filtering in the adaptation loop, a modification of the least mean square finite impulse response adaptive filter may be defined. A signal flow graph for such a modified filter is illustrated in FIGURE 9. Again, this filter may be used for the adaptive filter 130 of the echo canceler 110 of FIGURE 4. An additional n-tap delay line 184 with a filter block 186, whose transfer function HPD)) substantially matches the combined transfer function of HI)) (center dot) HE)) (center dot) HRX)) (center dot) HD)) for the adaptation loop, are employed to generate the required predistorted input vector used in the recursive tap weight update section 182 of the least mean square filter. With this configuration, the operation of the adaptive filter is predistorted to account for the amplitude and phase distortions introduced in the error signal ER by the transfer functions H for the components (interpolator 116', filter 120', filters 136 and decimator 140) of the echo channel 132 and receive channel 144. The goal of the training in this configuration (perhaps performed once in the factory), is to define the predistortion transfer function of the filter 186 in FIGURE 9. This may be achieved by configuring the modem as follows: switch 112(1) is placed in the "2" position, and switches 112(4), 112(5), 112(6) and 112(7) are placed in the "1" position. Adaptive filter feedback is connected by a way indicated at 146 in FIGURE 4. The transmit channel is turned off, for example, by disabling the converter 118. Accordingly, during the training sequence the conventional operation performed by the adaptive filter 130 causes its transfer function to converge essentially to the inverted adaptation loop transfer function. After multiplying the adaptation result HFIR)) by minus one, this transfer function may be stored in non-volatile memory for subsequent use in the modem operation after deployment.

The transfer function HPD)) is realized in the digital domain. However, it is recognized that any given analog transfer function component appearing...

8/3,K/5 (Item 5 from file: 348)  
 DIALOG(R)File 348:EUROPEAN PATENTS  
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00941273

**Adaptive digital feed-forward correction of RF power amplifier**  
**Adaptive digitale vorwärtsgekoppelte Korrektur für HF Leistungsverstärker**  
**Correction de réaction vers l'avant numérique adaptive d'un amplificateur de puissance HF**

PATENT ASSIGNEE:

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PATENT (CC, No, Kind, Date): EP 928515 A1 990714 (Basic)  
 EP 928515 B1 021106  
 WO 98012800 980326

APPLICATION (CC, No, Date): EP 97937169 970807; WO 97US14003 970807

PRIORITY (CC, No, Date): US 717500 960920

DESIGNATED STATES: DE; FR; GB; IT; NL; SE

INTERNATIONAL PATENT CLASS: H03F-001/26; H03F-001/32

NOTE:

No A-document published by EPO  
LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200245	1511
CLAIMS B	(German)	200245	1406
CLAIMS B	(French)	200245	1590
SPEC B	(English)	200245	4818
Total word count - document A			0
Total word count - document B			9325
Total word count - documents A + B			9325

...SPECIFICATION 213, multiplier 210 produces a product which is the complex feed-forward correction weight for a given power level and thermal condition.

As in the predistortion example of Figure 1, in order to control the rate of adaptation, the output 213 of multiplier 210 is filtered in a loop filter 214, which may be implemented as a linear ( FIR ) filter .

Filter 214 combines the delayed feed-forward correction value from a delay circuit 215, coupled to the output 233 of RAM 230, with the feed-forward correction estimate produced by multiplier 210. The filtered feed-forward weight estimate is then coupled to a write data port 234 of RAM 230.

The operation of the feed-forward embodiment of Figure 2 is similar...

8/3,K/6 (Item 6 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
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00888551

Signal conditioner with symbol addressed lookup table based transversal filters

Signalformgeber mit symboladressierten nachschlagetabellebasierten transversalen Filtern

Circuit de mise en forme comportant des filtres transversaux a table de consultation adressee par symboles

PATENT ASSIGNEE:

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INVENTOR:

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LEGAL REPRESENTATIVE:

Ertl, Nicholas Justin et al (81413), Elkington and Fife, Prospect House, 8 Pembroke Road, Sevenoaks, Kent TN13 1XR, (GB)

PATENT (CC, No, Kind, Date): EP 813300 A1 971217 (Basic)

APPLICATION (CC, No, Date): EP 96304376 960612;

PRIORITY (CC, No, Date): EP 96304376 960612

DESIGNATED STATES: DE; FR; GB; IT; SE

INTERNATIONAL PATENT CLASS: H03H-017/02; H03H-017/06;

ABSTRACT WORD COUNT: 210

LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9712W2	908
SPEC A	(English)	9712W2	3676
Total word count - document A			4584
Total word count - document B			0

Total word count - documents A + B 4584

...SPECIFICATION precomputing the requisite corrections and programming the lookup tables with the predistorted waveforms. Prior art techniques that compensate for ISI make use of a transversal filter architecture to distort the waveform such that intersymbol interference at the output of the transmitter is minimized. A finite impulse response (FIR) filter with taps spaced by a delay of one symbol performs such a function. The FIR filter forms the weighted sum of the waveforms which represent a finite number of past symbols and future symbols. The weighting factors are predetermined such that...

...added to the waveform representing the current symbol, the factors which cause subsequent ISI are effectively cancelled. In a digital implementation of such a FIR filter pre-equalizer, the waveform is commonly multiplied at each tap by means of a multiplier circuit and a register containing the weighting factor. An alternative implementation is...

...word representing the waveform at each tap. The lookup tables are programmed to output a weighted representation of the input address. Quadrature waveforms require a FIR filter for each of the two quadrature components. An additional pair of FIR filters may be required to compensate for any "cross" effects.

Conventional techniques have not provided for a transversal (FIR) filter that utilizes symbol addressed lookup...

8/3,K/7 (Item 1 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00774741 \*\*Image available\*\*

#### DIGITAL PREDISTORTION METHODS FOR WIDEBAND AMPLIFIERS

#### PROCEDES DE PREDISTORSION NUMERIQUE POUR AMPLIFICATEURS A LARGE BANDE

Patent Applicant/Assignee:

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Patent and Priority Information (Country, Number, Date):

Patent: WO 200108297 A1 20010201 (WO 0108297)

Application: WO 2000IB1051 20000713 (PCT/WO IB0001051)

Priority Application: US 99143570 19990713; US 2000595988 20000616

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ

DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ

LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG

SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW  
(EA) AM AZ BY KG KZ MD RU TJ TM  
Publication Language: English  
Filing Language: English  
Fulltext Word Count: 33999

Fulltext Availability:  
Detailed Description

#### Detailed Description

... and those being read from the table 52H for use.

Figures 4A and 4B illustrate example digital circuits that may be used to implement the **predistortion filter** 52A and the 10 modulator correction circuit 52B. A variety of other well known circuits can alternatively be used. The number of **taps**  $N$  used for the **predistortion filter** 52A is a matter of design choice, but may, for example, be in the range of 5-11. Since a different set of **FIR filter** coefficients is used for each input sample of the input signal  $V_m(t)$  (indexed by power or amplitude), correction of the amplifier's wideband AM...

...characteristic is also achieved if the tap values are correctly computed. Since this is preferably a non-realtime computation process, the task of computing the **FIR** coefficient values is the responsibility of the ACPCE.

#### 3 2 Integration Filter Construction

Figure 5 illustrates the construction of the integration filter 52F in a ...such, may not be accurately modeled by a linear or nonlinear function of the amplifier's past power profile.

Figure 6 illustrates a nonlinear integration **filter** kernel that may be used to overcome this problem when the wideband **predistortion** design is used with transistor technologies that exhibit nonlinear changes as a function of temperature. The nonlinear integration **filter** 52F is constructed from a bank of linear filters and a bank of multiplier 5 stages. The input to each multiplier is the input signal...  
... $x(t)$ , 40, 00 ...  $x''(t)$ , to be computed from the original input signal  $x(t)$ . Each new signal is then fed to a linear **FIR filter**. As with the basic integration **filter**, the **FIR filter** tap coefficients and delay periods between **taps** are fully adjustable by the ACPCE. If each **filter** is regarded as an  $n$ th order kernel, the structure permits any linear or nonlinear function of the past input power profile to be computed. This permits accurate indexing into the two dimensional **predistortion filter** table 52H that corrects for the instantaneous distortion that is being generated by the nonlinear amplifier.

Equation 1 provides a mathematical definition of a nonlinear...

8/3,K/8 (Item 2 from file: 349)  
DIALOG(R) File 349:PCT FULLTEXT  
(c) 2004 WIPO/Univentio. All rts. reserv.

00774740 \*\*Image available\*\*

AMPLIFIER MEASUREMENT AND MODELING PROCESSES FOR USE IN GENERATING  
PREDISTORTION PARAMETERS

PROCEDES DE MESURE ET DE MODELISATION POUR AMPLIFICATEURS PERMETTANT DE  
GENERER DES PARAMETRES DE PRECORRECTION

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Patent and Priority Information (Country, Number, Date):

Patent: WO 200108296 A1 20010201 (WO 0108296)

Application: WO 2000IB1047 20000713 (PCT/WO IB0001047)

Priority Application: US 99143570 19990713; US 2000596962 20000619

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ

DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ

LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG

SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

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(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 36262

Fulltext Availability:

Detailed Description

Detailed Description

... those being read from the table 52H for use.

Figures 4A and 4B illustrate example digital circuits that may be used to implement the **predistortion filter** 52A and the III modulator correction circuit 52B. A variety of other well known circuits can alternatively be used. The number of **taps** N used for the **predistortion filter** 52A is a matter of design choice, but may, for example, be in the range of 5-11. Since a different set of **FIR filter** coefficients is used for each input sample of the input signal  $V_{rn}(t)$  (indexed by power or amplitude), correction of the amplifier's wideband AM...

...characteristic is also achieved if the tap values are correctly computed. Since this is preferably a non-realtime computation process, the task of computing the **FIR** coefficient values is the responsibility of the ACPCE.

### 3 2.1 . Integration Filter Construction

Figure 5 illustrates the construction of the integration filter 52F in... such, may not be accurately modeled by a linear or nonlinear function of the amplifier's past power profile.

Figure 6 illustrates a nonlinear integration **filter** kernel that may be used to overcome this problem when the wideband **predistortion** design is used with transistor technologies that exhibit nonlinear changes as a function of temperature. The nonlinear integration **filter** 52F is constructed from a bank of linear filters and a bank of multiplier stages. The input to each multiplier is the input signal magnitude...

...X2(t), X3(t) ... Xn(t), to be computed from the original input signal x(t). Each new signal is then fed to a linear **FIR filter**. As with the basic integration filter, the **FIR filter** tap coefficients and delay periods between **taps** are fully adjustable by the ACPCE. If each filter is regarded as an nth order kernel, the structure permits any linear or nonlinear function of the past input power profile to be computed. This permits accurate indexing into the two dimensional **predistortion filter** table 52H that corrects for the instantaneous distortion that is being generated by the nonlinear amplifier.

Equation 1 provides a mathematical definition of a nonlinear...

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DIALOG(R) File 349:PCT FULLTEXT  
(c) 2004 WIPO/Univentio. All rts. reserv.

00774739 \*\*Image available\*\*  
**PREDISTORTION AMPLIFIER SYSTEM WITH SEPARATELY CONTROLLABLE AMPLIFIERS**  
**SYSTEME D'AMPLIFICATEURS DE PREDISTORSION COMPORTANT DES AMPLIFICATEURS**  
**POUVANT ETRE COMMANDES SEPAREMENT**

Patent Applicant/Assignee:

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Patent and Priority Information (Country, Number, Date):

Patent: WO 200108295 A1 20010201 (WO 0108295)

Application: WO 2000IB1044 20000713 (PCT/WO IB0001044)

Priority Application: US 99143570 19990713; US 2000597915 20000619

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ

DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ

LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG

SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

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(EA) AM AZ BY KG KZ MD RU TJ TM

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Fulltext Word Count: 33244

Fulltext Availability:

Detailed Description

Detailed Description

... and those being read from the table 52H for use.

Figures 4A and 4B illustrate example digital circuits that may be used to

implement the **predistortion filter 52A** and the IG modulator correction circuit 52B. A variety of other well known circuits can alternatively be used. The number of **taps N** used for the **predistortion filter 52A** is a matter of design choice, but may, for example, be in the range of 5-11. Since a different set of **FIR filter coefficients** is used for each input sample of the input signal  $V_m(t)$  (indexed by power or amplitude), correction of the amplifier's wideband AM is preferably a non-realtime computation process, the task of computing the **FIR coefficient values** is the responsibility of the ACPCE.

### 3.2 Integration Filter Construction

Figure 5 illustrates the construction of the integration filter 52F in a ...

...such, may not be accurately modeled by a linear or nonlinear function of the amplifier's past power profile.

Figure 6 illustrates a nonlinear integration **filter kernel** that may be used to overcome this problem when the wideband **predistortion** design is used with transistor technologies that exhibit nonlinear changes as a function of temperature. The nonlinear integration **filter 52F** is constructed from a bank of linear filters and a bank of multiplier stages. The input to each multiplier is the input signal magnitude...

... $X_2(t)$ ,  $X_1(t)$  ...  $x'(t)$ , to be computed from the original input signal  $x(t)$ . Each new signal is then fed to a linear **FIR filter**. As with the basic integration **filter**, the **FIR filter tap coefficients** and delay periods between **taps** are fully adjustable by the ACPCE. If each **filter** is regarded as an  $n$ th order kernel, the structure permits any linear or nonlinear function of the past input power profile to be computed. This permits accurate indexing into the two dimensional **predistortion filter table 52H** that corrects for the instantaneous distortion that is being generated by the nonlinear amplifier.

Equation 1 provides a mathematical definition of a nonlinear...

8/3,K/10 (Item 4 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00774738 \*\*Image available\*\*

TRANSMISSION ANTENNA ARRAY SYSTEM WITH PREDISTORTION  
SYSTEME DE RESEAU D'ANTENNE DE TRANSMISSION AVEC PREDISTORSION

Patent Applicant/Assignee:

DATUM TELEGRAPHIC INC, Suite 390, 2600 Granville Street, Vancouver,  
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Patent and Priority Information (Country, Number, Date):

Patent: WO 200108294 A1 20010201 (WO 0108294)

Application: WO 2000IB1038 20000713 (PCT/WO IB0001038)

Priority Application: US 99143570 19990713; US 2000596410 20000619

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ  
DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ  
LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG  
SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW  
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE  
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG  
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW  
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Fulltext Availability:  
Detailed Description

Detailed Description

... and those being read from the table 52H for use.

Figures 4A and 4B illustrate example digital circuits that may be used to implement the **predistortion filter** 52A and the 10 modulator correction circuit 52B. A variety of other well known circuits can alternatively be used. The number of **taps** N used for the **predistortion filter** 52A is a matter of design choice, but may, for example, be in the range of 5-11. Since a different set of **FIR filter** coefficients is used for each input sample of the input signal  $V_m(t)$  (indexed by power or amplitude), correction of the amplifier's wideband AM...

...characteristic is also achieved if the tap values are correctly computed. Since this is preferably a non-realtime computation process, the task of computing the **FIR** coefficient values is the responsibility of the ACPCE.

...not be accurately modeled by a linear or nonlinear function of the amplifier's past power profile.

I 0 Figure 6 illustrates a nonlinear integration **filter** kernel that may be used to overcome this problem when the wideband **predistortion** design is used with transistor technologies that exhibit nonlinear changes as a function of temperature. The nonlinear integration **filter** 52F is constructed from a bank of linear filters and a bank of multiplier stages. The input to each multiplier is the input signal magnitude...  
... $x(t)$ ,  $X_3(t)$  ...  $X_n(t)$ , to be computed from the original input signal  $x(t)$ . Each new signal is then fed to a linear **FIR filter**. As with the basic integration **filter**, the **FIR filter** tap coefficients and delay periods between **taps** are fully adjustable by the ACPCE. If each **filter** is regarded as an nth order kernel, the structure permits any linear or nonlinear function of the past input power profile to be computed. This permits accurate indexing into the two dimensional **predistortion filter** table 52H that corrects for the instantaneous distortion that is being generated by the nonlinear amplifier.

Equation 1 provides a mathematical definition of a nonlinear...

DIALOG(R) File 349:PCT FULLTEXT  
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00771501     \*\*Image available\*\*

**A WIDEBAND DIGITAL PREDISTORTION LINEARIZER FOR NONLINEAR AMPLIFIERS**  
**LINEARISEUR DE PREDISTORSION NUMERIQUE A LARGE BANDE POUR AMPLIFICATEURS**  
**NON LINEAIRES**

Patent Applicant/Assignee:

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Inventor(s):

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4K4, CA

BENNETT Steven J, 2303 Kugler Avenue, Coquitlam, British Columbia V5R 3K4  
, CA

Patent and Priority Information (Country, Number, Date):

Patent: WO 200105026 A1 20010118 (WO 0105026)

Application: WO 2000IB1049 20000713 (PCT/WO IB0001049)

Priority Application: US 99143570 19990713; US 2000596142 20000616

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ

DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ

LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG

SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 34388

Fulltext Availability:

Detailed Description

Detailed Description

... and those being read from the table 52H for use.

Figures 4A and 4B illustrate example digital circuits that may be used to implement the **predistortion filter** 52A and the 10 modulator correction circuit 52B. A variety of other well known circuits can alternatively be used. The number of **taps** N used for the **predistortion filter** 52A is a matter of design choice, but may, for example, be in the range of 5-11. Since a different set of **FIR filter** coefficients is used for each input sample of the input signal  $V_{rn}(t)$  (indexed by power or amplitude), correction of the amplifier's wideband AM...

...characteristic is also achieved if the tap values are correctly computed. Since this is preferably a non-realtime computation process, the task of computing the **FIR** coefficient values is the responsibility of the ACPCE.

### 3.2 Integration Filter Construction

Figure 5 illustrates the construction of the integration filter 52F in a ...such, may not be accurately modeled by a linear or nonlinear function of the amplifier's past power profile.

Figure 6 illustrates a nonlinear integration filter kernel that may be used to overcome this problem when the 5 wideband predistortion design is used with transistor technologies that exhibit nonlinear changes as a function of temperature. The nonlinear integration filter 52F is constructed from a bank of linear filters and a bank of multiplier stages. The input to each multiplier is the input signal magnitude...

...X2(t), X1(t) ... Xn(t), to be computed from the original input signal x(t). Each new signal is then fed to a linear FIR filter. As with the basic integration filter, the FIR filter tap coefficients and delay periods between taps are fully adjustable by the ACPCE. If each filter is regarded as an nth order kernel, the structure permits any linear or nonlinear function of the past input power profile to be computed. This permits accurate indexing into the two dimensional predistortion filter table 52H that corrects for the instantaneous distortion that is being generated by the nonlinear amplifier.

Equation 1 provides a mathematical definition of a nonlinear...

8/3,K/12 (Item 6 from file: 349)  
DIALOG(R) File 349:PCT FULLTEXT  
(c) 2004 WIPO/Univentio. All rts. reserv.

00766344 \*\*Image available\*\*  
COMPANION NYQUIST FILTER AND LINEAR EQUALIZER WITHIN A DATA TRANSMISSION SYSTEM

ENSEMBLE FILTRE DE NYQUIST ET EGALISEUR LINEAIRE DANS UN SYSTEME DE TRANSMISSION DE DONNEES

Patent Applicant/Assignee:

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(Residence), US (Nationality)

Inventor(s):

TWITCHELL Edwin, 4041 Roass Avenue, San Jose, CA 95124, US

Legal Representative:

NIYOGI Bidyut, 95 Bulldog Bvd. Ste 207, Melbourne, FL 32901, US

Patent and Priority Information (Country, Number, Date):

Patent: WO 200079746 A1 20001228 (WO 0079746)

Application: WO 2000US17117 20000622 (PCT/WO US0017117)

Priority Application: US 99338346 19990622

Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK

DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR

LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ

TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Publication Language: English

Filing Language: English

Fulltext Word Count: 4948

Fulltext Availability:

Claims

Claim

... of the first and second processed versions of the signal by said combiner.

5 A system as claimed in claim 1, characterized in that said Nyquist filter has a first number of filter taps, said linear equalizer has a second, different number of filter taps, 20 said system including means for delaying input of the signal to said linear equalizer, the

delay being related to the first and second numbers of filter taps .

10

32 BIT 36 16 E31T 28 38 10 30

3 BIT I c

NYQUIST LINEAR' EQUAL- REAL NON-LINEAR

FILTER TO IZER (FOR H.P. TO CORRECTOR (FOR

(1 27 TA REAL FILTER DISTORT.) COMPLEX DISTORT.)

6

44

D1 D2

IMEMORY MEMOR

41

CONTROLLER

60 62 64@F t

SAMPLER

(WITH DOWN y

IMEMORY1

CONVERTER)

56",@\*N 26 52 24

20 50 22

FILTER (c.

POWER AND U D

TO FILTER CONVERTE (S

ANTENNA

Fig1

114 32 BIT 1 0 30

3 BIT COMPLEX 118

NYQUIST NON-LINEAR

FILTER CORRECTOR (FOR

(127 TAPS ) P.A. DISTORT.)

116 112

COMPLEX LINEAR

CIO EQUALIZER (FOR H.P. 46

FILTER DISTORT.)

(63 TAPS ) D2

MEMO.

41

CONTROLLER

60 62 64 t

SAMPLER Y

(WITH DOWN MEMORY

CONVERTER)

26 52 24 22

HIGH' 20 50 FI LTER (S)

AND UP

POWER

TO FILTER CONVERTER(

ANTENNA FIGN 2

/4

1 0

20-24,30-34, AND 38-40

.....

TO

x d ANTENNA

IST DOWNSTREAM

g (n) COMPONENTS h(n...

...e y

CONTROLLER ---I FIGs 3

112 AND 114 20-249 30-341 AND 38-40

x(n) ZER h(n)  
n)  
ADAKION  
41  
(n)  
NYQUIST FILTER y(n)  
g(n)  
CONTROLLER FIGm 4  
SUBSTITUTE SHEET (RULE26)  
/4  
1 10A  
38A 11 4A 1 1 BA  
R L TO  
COMPLEX NON-LINEAR...

...RELEVANT

Category Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No.

X KARAM G ET AL: "IMPROVED DATA I

PREDISTORTION USING INTERSYMBOL  
INTERPOLATION"

INTERNATIONAL CONFERENCE ON  
COMMUNICATIONS,US,NEW YORK, IEEE,  
vol. -, 11 June 1989 (1989 11), pages  
286-291, XPO00075470

Y abstract; figure 2...

8/3,K/13 (Item 7 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00422339 \*\*Image available\*\*

ADAPTIVE DIGITAL PREDISTORTION LINEARIZATION AND FEED-FORWARD CORRECTION OF  
RF POWER AMPLIFIER

LINEARISATION DE PREDISTORSION ET CORRECTION DE REACTION VERS L'AVANT  
NUMERIQUES ADAPTATIVES D'UN AMPLIFICATEUR DE PUISSANCE HF

Patent Applicant/Assignee:

SPECTRIAN,

Inventor(s):

PROCTOR James A,

MUCENIEKS Lance Todd,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9812800 A1 19980326

Application: WO 97US14003 19970807 (PCT/WO US9714003)

Priority Application: US 96717500 19960920

Designated States: JP KR AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Publication Language: English

Fulltext Word Count: 8466

Fulltext Availability:

Detailed Description

Detailed Description

... 213, multiplier 210

produces a product which is the complex feed-forward correction  
weight for a given power level and thermal condition.

As in the predistortion embodiment of Figure 1. in order to  
control the rate of adaptation, the output 213 of multiplier 210  
is filtered in a loop filter 214, which may be implemented as a

linear ( FIR ) filter , Filter 214 combines the delayed feed-forward correction value from a delay circuit 215, coupled to the output 233 of RAM 230, with the feed-forward correction estimate produced by multiplier 210. The filtered feed-forward weight estimate is then coupled to a write data port 234 of RAM 230.

The operation of the feed-forward embodiment of Figure 2 is similar...

8/3,K/14 (Item 8 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
(c) 2004 WIPO/Univentio. All rts. reserv.

00413612 \*\*Image available\*\*  
**BLIND DFE AND PHASE CORRECTION**  
**CORRECTION DE PHASE ET DE DFE AVEUGLE**

Patent Applicant/Assignee:

LIBIT SIGNAL PROCESSING LIMITED,  
SEGAL Mordechai,  
SHALVI Ofir,

Inventor(s):

SEGAL Mordechai,  
SHALVI Ofir,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9804073 A2 19980129

Application: WO 97IB903 19970718 (PCT/WO IB9700903)

Priority Application: US 9622195 19960719

Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES  
FI GB GE GH HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN  
MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU  
ZW GH KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES  
FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD  
TG

Publication Language: English

Fulltext Word Count: 4058

Fulltext Availability:

Detailed Description

Detailed Description

... equalizer filter unit 310. The input sequence of the unit,  $s[n]$  is filtered by a digital FIR (Finite Impulse Response) I 0 filter 401 with  $L$  taps  $p$ .  $[II \dots p][L]$  ( $L > 0$ ) where  $PT$  denotes the 1-th tap after  $n$  iterations. The taps of the filter are adaptively adjusted by an adaptation unit 402. The adaptation rule is.

$A_{n,1} IM = P \cdot I_{f1} + r_n (S2[n]s1' [n-1] 1 = I \dots$

8/3,K/15 (Item 9 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
(c) 2004 WIPO/Univentio. All rts. reserv.

00251797  
**METHOD FOR EQUALIZING A MULTICARRIER SIGNAL**  
**PROCEDE D'EGALISATION D'UN SIGNAL A PORTEUSES MULTIPLES**

Patent Applicant/Assignee:

THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY,

CHOW Jacky,  
CIOFFI John M,  
Inventor(s):  
CHOW Jacky,  
CIOFFI John M,  
Patent and Priority Information (Country, Number, Date):  
Patent: WO 9326096 A1 19931223  
Application: WO 93US5591 19930610 (PCT/WO US9305591)  
Priority Application: US 92104 19920612  
Designated States: AT AU BB BG BR CA CH CZ DE DK ES FI GB HU JP KP KR KZ LK  
LU MG MN MW NL NO NZ PL PT RO RU SD SE SK UA US VN AT BE CH DE DK ES FR  
GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG  
Publication Language: English  
Fulltext Word Count: 8166

Fulltext Availability:  
Detailed Description

#### Detailed Description

... the last N samples of the composite block for the input to the FFT in the receiver,  
7 40 A guard period combined with adaptive **pre equalization** : If the channel distortion is very large, then a good compromise between minimizing the latency and the amount of signal processing and memory required, and...

...data throughput efficiency can be achieved by using a short guard period and a short adaptive equalizer (i.e., one with a small number of **taps** ) in the receiver. This combination was proposed in J,S, Chow,, JoC. Tu, and J.M. Cioffil "A Discrete Multitone Transceiver System for HDSL Applications...the remaining N samples to be used for an undistorted input to the FFT, Therefore, when a guard period is used, the task of the **pre - equalizer** is to compress the channel impulse response to the length of the cyclic prefix. This is discussed in detail in J.S. Chow, J.C...

...4. The transmit signal, x, is input to the channel, p, noise is added to it, and the noisy, distorted signal is input to a **pre equalizer** , w. The output signal, z. should appear to have passed through a "target" channel with impulse response b,, which is of length L or less. The adaptation of the **pre equalizer** is therefore performed by driving to zero the difference between z and the output of the channel target, The input to the target...

...papers on the design of such an equalizer were published between twenty and ten years ago; see, for example, D,G, Messerschmidt, "Design of a **Finite Impulse Response** for the Viterbi Algorithm and Decision Feedback Equalizer", IEEE Intl. Conf, Commun, Record, pp, 37D,1-D.5, June 1974; D.D, Falconer and F...

...response, b, is not of interest per se, but it must be learned in order to derive an error signal for the adaptation of the **pre - equalizer** , we  
In the discussion of **pre - equalizers** f or MLSE the

"channel target" was called either a Desired Impulse Response (DIR) or a Shortened Impulse Response (SIR) , A Earlier papers assumed some a priori response (a DIR) , and adapted only the **pre - equalizer** ; the problems of adaptation were similar to those encountered in the design of conventional equalizers for single-carrier systems (see for example, J.A.C, Bingham, The Theory and Practice of **Modem Design**, John Wilkey & Sons, New York, May 1988), It was later recognized, however, that if the channel distortion is severe, then any a priori choice of the shortened response will almost certainly be sub-optimum; both **pre - equalizer** and SIR must be adapted simultaneously, The method chosen for this was the conventional stochastic gradient, or Least Mean Square (LMS)r adaptation in the time domain, but convergence was very slow at best, and not always assured, Convergence of the individual LMS algorithms for **pre - equalizer** and SIR would be slow because of the severe channel distortion and the resultant correlation between successive input samples; convergence of the coupled algorithms was doubly problematic,

Another shortcoming of most of the work on **pre equalizers** for MLSE was that it derived from the earlier problem of designing **pre - equalizers** for Decision Feedback Equalizers. For this earlier application the output of the **pre - equalizer** had to be essentially minimum-phase; that is, if the impulse response of the channel and **pre equalizer** is expressed as a polynomial in the delay variable  $D$ , , all dominant zeros of the polynomial should be outside the unit circle. This requirement...

?

15/3,K/1 (Item 1 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2004 European Patent Office. All rts. reserv.

01261867

Method for the calculation of the coefficients of a polyphase FIR filter  
Verfahren fur die Koeffizientenberechnung eines FIR Polyphasenfilters  
Procede de calcul des coefficients d'un filtre FIR polyphase

PATENT ASSIGNEE:

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States: all)

INVENTOR:

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Raveglione, Dalmazio, Piazza Leonardo da Vinci, 7, 20133 Milano, (IT)

LEGAL REPRESENTATIVE:

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PATENT (CC, No, Kind, Date): EP 1089507 A2 010404 (Basic)

APPLICATION (CC, No, Date): EP 120446 000919;

PRIORITY (CC, No, Date): IT 99MI2010 990928

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: H04L-025/03

ABSTRACT WORD COUNT: 169

NOTE:

Figure number on first page: 5

LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200114	1851
SPEC A	(English)	200114	7607
Total word count - document A			9458
Total word count - document B			0
Total word count - documents A + B			9458

...SPECIFICATION title: "Multiple use digital transmitter/transceiver with  
time multiplexing". Making reference to the figure, we notice the  
following blocks: a digital adder 24, a digital pre - distortion filter  
40, a FIR interpolator filter 38, a DAC 26, and an analogue band pass  
filter 32 from which a signal at intermediate frequency IFout of the  
multichannel type...

15/3,K/2 (Item 2 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
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01246449

Transmit diversity method and system with phase adjustment for radio  
communications systems

Sende-Diversity Verfahren und System mit Phasenregelung fur  
Funkubertragungssysteme

Procede et systeme d'emission en diversite avec reglage des phases pour un  
systeme de communication radio

PATENT ASSIGNEE:

MOTOROLA, INC., (205770), 1303 East Algonquin Road, Schaumburg, IL 60196,

(US), (Proprietor designated states: all)

INVENTOR:

Clop, Oscar, 9 bis rue des Potiers, Fonteray aux Roses, (FR)  
Farmine, Yann, 9 bis rue des Potiers, Fonteray aux Roses, (FR)  
Whinnett, Nicolas, 7 rue de la Cerisaie, 75004 Paris, (FR)

LEGAL REPRESENTATIVE:

Litchfield, Laura Marie et al (85542), Motorola European Intellectual  
Property Operations, Midpoint - Alencon Link, Basingstoke, Hampshire  
RG21 7PL, (GB)

PATENT (CC, No, Kind, Date): EP 1077535 A1 010221 (Basic)  
EP 1077535 B1 011219

APPLICATION (CC, No, Date): EP 99401258 990526;

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE

EXTENDED DESIGNATED STATES: AL; LT; LV; SI

INTERNATIONAL PATENT CLASS: H04B-007/02

ABSTRACT WORD COUNT: 107

NOTE:

Figure number on first page: 4

LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200108	192
CLAIMS B	(English)	200151	192
CLAIMS B	(German)	200151	181
CLAIMS B	(French)	200151	226
SPEC A	(English)	200108	2573
SPEC B	(English)	200151	2578
Total word count - document A			2765
Total word count - document B			3177
Total word count - documents A + B			5942

...SPECIFICATION two base stations. The invention can also be used in conjunction with broadcast channels. It can be used in cases of multi-path optimisation with **FIR pre - distortion** filter. In this case not only the strongest path is optimised, but a number determined by the length by the FIR filter.

The invention also...

...SPECIFICATION two base stations. The invention can also be used in conjunction with broadcast channels. It can be used in cases of multi-path optimisation with **FIR pre - distortion** filter. In this case not only the strongest path is optimised, but a number determined by the length by the FIR filter.

The invention also...

15/3,K/3 (Item 3 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

(c) 2004 European Patent Office. All rts. reserv.

01036816

DATA ALLOCATION IN A MULTICARRIER TRANSMISSION SYSTEM

DATENZUORDNUNG IN EINEM MEHRTRAGERUBERTRAGUNGSSYSTEM

ATTRIBUTION MOINS COMPLEXE DE BITS AUX SOUS-CANAUUX D'UN SYSTEME DE  
TRANSMISSION TRES RAPIDE DE DONNEES A PLUSIEURS PORTEUSES

PATENT ASSIGNEE:

Telefonaktiebolaget L M Ericsson (Publ), (213764), 126 25 Stockholm, (SE)  
, (Proprietor designated states: all)

INVENTOR:

HYLL, Mattias, Ringvagen 156, S-116 31 Stockholm, (SE)  
 LEGAL REPRESENTATIVE:  
 Stein, Jan Anders Lennart et al (85841), Albihns Stockholm AB, Box 5581,  
 114 85 Stockholm, (SE)  
 PATENT (CC, No, Kind, Date): EP 1018252 A1 000712 (Basic)  
 EP 1018252 B1 020306  
 WO 9916224 990401  
 APPLICATION (CC, No, Date): EP 98945679 980909; WO 98SE1598 980909  
 PRIORITY (CC, No, Date): US 935529 970923  
 DESIGNATED STATES: FR; GB; NL; SE  
 INTERNATIONAL PATENT CLASS: H04L-027/26  
 NOTE:

No A-document published by EPO  
 LANGUAGE (Publication,Procedural,Application): English; English; English  
 FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200210	1049
CLAIMS B	(German)	200210	943
CLAIMS B	(French)	200210	1163
SPEC B	(English)	200210	6101
Total word count - document A			0
Total word count - document B			9256
Total word count - documents A + B			9256

...SPECIFICATION through a D.C. isolating transformer and low-pass filter 48, converted to digital form by an analog-to-digital converter (ADC) 50, time domain pre - equalized by a finite impulse response (FIR) filter 52 to limit the effective memory of the channel, and stripped of the cyclic prefix during post-receive processing in converter 54. The...

15/3,K/4 (Item 4 from file: 348)  
 DIALOG(R)File 348:EUROPEAN PATENTS  
 (c) 2004 European Patent Office. All rts. reserv.

00720096  
**Digital modulator for cellular base stations**  
**Digitaler Modulator fur Zellularbasisstationen**  
**Modulateur numerique pour stations de base cellulaires**  
 PATENT ASSIGNEE:

HARRIS CORPORATION, (313795), 1025 West NASA Blvd MS 53, Melbourne, FL 32919, (US), (Applicant designated States: all)

INVENTOR:  
 Chester, David B., 62A-028 2401 Palm Bay Road N. E., Palm Bay, Florida 32905, (US)

LEGAL REPRESENTATIVE:  
 van Berlyn, Ronald Gilbert (37011), 23, Centre Heights, London NW3 6JG, (GB)

PATENT (CC, No, Kind, Date): EP 681382 A2 951108 (Basic)  
 EP 681382 A3 990908

APPLICATION (CC, No, Date): EP 95302759 950425;

PRIORITY (CC, No, Date): US 235979 940502

DESIGNATED STATES: DE; FR; GB; IT; SE

INTERNATIONAL PATENT CLASS: H04L-005/06

ABSTRACT WORD COUNT: 53

NOTE:

Figure number on first page: 2

LANGUAGE (Publication,Procedural,Application): English; English; English  
 FULLTEXT AVAILABILITY:  
 Available Text Language Update Word Count

CLAIMS A	(English)	EPAB95	1274
SPEC A	(English)	EPAB95	4013
Total word count	- document A		5287
Total word count	- document B		0
Total word count	- documents A + B		5287

...CLAIMS for rounding off said predistorted composite signal to a selective accuracy, in which predistortion circuit predistorts as a function of  $X/(\sin X)$ , or said predistortion circuit comprises a finite impulse response filter.

9. A method of transmitting plural data signals comprising the steps of:

- a. providing plural digital data signals;
- b. encoding each of said digital...off said predistorted composite signal to a predetermined accuracy, with said predistortion circuit predistorts as a function of  $X / (\sin X)$ , and in which said predistortion circuit comprises a finite impulse response filter. ...

15/3,K/5 (Item 5 from file: 348)  
DIALOG(R) File 348:EUROPEAN PATENTS  
(c) 2004 European Patent Office. All rts. reserv.

00597236

Receiving arrangement for receiving a digital signal from a transmission medium, including variable equalizer means  
Empfangsanordnung zum Empfang eines digitalen Signals von einem Übertragungsmedium mit variablen Entzerrungsmitteln  
Dispositif de reception d'un signal numerique a partir d'un moyen de transmission, comportant un correcteur variable

PATENT ASSIGNEE:

Koninklijke Philips Electronics N.V., (200769), Groenewoudseweg 1, 5621 BA Eindhoven, (NL), (applicant designated states: AT;BE;DE;FR;GB)

INVENTOR:

Kahlman, Josephus Arnoldus Henricus Maria, c/o Int. Octrooibureau B.V., Prof. Holstlaan 6, NL-5656 AA Eindhoven, (NL)  
Rijckaert, Albert Maria Arnold, c/o Int. Octrooibureau B.V., Prof. Holstlaan 6, NL-5656 AA Eindhoven, (NL)

LEGAL REPRESENTATIVE:

van der Kruk, Willem Leonardus et al (51131), INTERNATIONAAL OCTROOIBUREAU B.V., Prof. Holstlaan 6, 5656 AA Eindhoven, (NL)

PATENT (CC, No, Kind, Date): EP 583818 A1 940223 (Basic)  
EP 583818 B1 981007

APPLICATION (CC, No, Date): EP 93202243 930729;

PRIORITY (CC, No, Date): EP 92202428 920806

DESIGNATED STATES: AT; BE; DE; FR; GB

INTERNATIONAL PATENT CLASS: G11B-020/10; H04L-025/03;

ABSTRACT WORD COUNT: 225

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9841	4149
CLAIMS B	(German)	9841	3756
CLAIMS B	(French)	9841	4102
SPEC B	(English)	9841	15048
Total word count	- document A		0
Total word count	- document B		27055
Total word count	- documents A + B		27055

...SPECIFICATION 2a is recorded on the record carrier and is read out by the differentiating head 1, and shaped in magnitude and phase according to the Nyquist 1 criterion in pre - equalizer 4, which results, in case of an ideal situation, in a response as given in figure 2b and 2c. The signal given in figure 2b...

15/3,K/6 (Item 1 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00755714 \*\*Image available\*\*

**MULTICARRIER EQUALISER BASED ON KRAKOVIAN ALGEBRA**  
**EGALISEUR A PORTEUSE MULTIPLE BASE SUR L'ALGEBRE CRACOVIE**

Patent Applicant/Assignee:

TELEFONAKTIEBOLAGET LM ERICSSON (publ), S-126 25 Stockholm, SE, SE  
(Residence), SE (Nationality)

Inventor(s):

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Legal Representative:

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Patent and Priority Information (Country, Number, Date):

Patent: WO 200069134 A1 20001116 (WO 0069134)

Application: WO 2000SE938 20000511 (PCT/WO SE0000938)

Priority Application: US 99309298 19990511

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE

DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC

LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK

SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

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(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 9802

Fulltext Availability:

Detailed Description

Detailed Description

... passed through a D.C.

isolating transformer and low-pass filter 48, converted to digital form by an analog-to-digital converter (ADC) 50, time domain pre - equalized by a finite impulse response (FIR) filter 52 to reduce the effective memory of the channel, and stripped of the cyclic prefix during post-receive processing in converter 54. The...

15/3,K/7 (Item 2 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00562122 \*\*Image available\*\*

**METHOD AND APPARATUS FOR REDUCING DISTORTION OF DIGITAL DATA**

**PROCEDE ET APPAREIL PERMETTANT LA REDUCTION DE LA DISTORSION DES DONNEES**  
**NUMERIQUES**

Patent Applicant/Assignee:

TANDBERG TELEVISION LIMITED,  
BEECH Brian Herbert,  
EDWARDS David,  
Inventor(s):  
BEECH Brian Herbert,  
EDWARDS David,  
Patent and Priority Information (Country, Number, Date):  
Patent: WO 200025495 A1 20000504 (WO 0025495)  
Application: WO 99GB3425 19991022 (PCT/WO GB9903425)  
Priority Application: GB 9823190 19981023  
Designated States: JP US AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT  
SE  
Publication Language: English  
Fulltext Word Count: 4499  
Fulltext Availability:  
Claims

Claim

... of Claim 5 wherein the satellite transmission link includes  
a Nyquist filter.  
I I The method of Claim 10 wherein the Nyquist filter comprises root  
Nyquist filters.  
Apparatus for pre - distortion of a signal, modulated to carry symbols  
representing digital data, so as to offset later distortion of the signal  
1 5 during transmission across a...

15/3,K/8 (Item 3 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00519617 \*\*Image available\*\*  
AN EQUALIZER FOR USE IN MULTICARRIER MODULATION SYSTEMS  
EGALISEUR UTILE DANS DES SYSTEMES DE MODULATION A PORTEUSES MULTIPLES  
Patent Applicant/Assignee:  
TELEFONAKTIEBOLAGET LM ERICSSON,  
Inventor(s):  
FERTNER Antoni,  
Patent and Priority Information (Country, Number, Date):  
Patent: WO 9950969 A2 19991007  
Application: WO 99SE468 19990324 (PCT/WO SE9900468)  
Priority Application: US 9849384 19980327  
Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE  
ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT  
LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT  
UA UG UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ UG ZW AM AZ BY KG KZ MD RU  
TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG  
CI CM GA GN GW ML MR NE SN TD TG  
Publication Language: English  
Fulltext Word Count: 7290  
Fulltext Availability:  
Detailed Description

Detailed Description

... passed through a D.C.

isolating transformer and low-pass filter 48, converted to digital form  
by an analog-to-digital converter (ADC) 50, time domain pre - equalized  
by a finite impulse response (FIR) filter 52 to limit the effective

memory of the channel, and stripped of the cyclic prefix during post-receive processing in converter 54. The...

15/3,K/9 (Item 4 from file: 349)  
DIALOG(R) File 349:PCT FULLTEXT  
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00499113 \*\*Image available\*\*

**BIT ALLOCATION IN A TRANSMISSION SYSTEM**

**AFFECTATION DES BITS DANS UN SYSTEME DE TRANSMISSION**

Patent Applicant/Assignee:

TELEFONAKTIEBOLAGET LM ERICSSON (publ),

TORÉ Andre,

Inventor(s):

TORÉ Andre,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9930465 A1 19990617

Application: WO 98SE2050 19981113 (PCT/WO SE9802050)

Priority Application: SE 974551 19971205

Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES

FI GB GD GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV

MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG

US UZ VN YU ZW GH GM KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT

BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA

GN GW ML MR NE SN TD TG

Publication Language: English

Fulltext Word Count: 5887

Fulltext Availability:

Detailed Description

Detailed Description

... DC isolating transformer and  
low-pass filter (not shown in fig. 1), converted to digital form  
by an analog-to-digital converter 37, time domain **pre - equalized**  
by a **finite impulse response** (FIR) filter (not shown in fig. 1)  
to limit the effective memory of the channel, stripped of the  
cyclic prefix and converted to a parallel...

?

19/3,K/1 (Item 1 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00824466 \*\*Image available\*\*

METHOD AND APPARATUS FOR ADJUSTMENT OF THE SAMPLING PHASE IN A PCM MODEM  
SYSTEM USING A DUAL-PHASE PROBING SIGNAL

PROCEDE ET APPAREIL D'AJUSTEMENT DE LA PHASE D'ECHANTILLONNAGE DANS UN  
SYSTEME DE MODEMS MIC A SIGNAL DE SONDAGE BIPHASE

Patent Applicant/Assignee:

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Legal Representative:

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Patent and Priority Information (Country, Number, Date):

Patent: WO 200158033 A1 20010809 (WO 0158033)

Application: WO 2001US3332 20010201 (PCT/WO US0103332)

Priority Application: US 2000498822 20000204

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DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC

LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI

SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 5225

Main International Patent Class: H04B-001/38

International Patent Class: H04L-005/16

Fulltext Availability:

Detailed Description

Detailed Description

... in the upstream direction of a Public

Switched Telephone Network, PSTN, using an ITU-V.92 like PCM modem  
connection it is necessary for a **pre - equalizer** to be employed by the  
analog modem transmitter to compensate for local loop channel distortion.  
It is known that the fractional sampling phase offset of...

...received symbol stream relative to the A/D quantizer at the central  
office, or CO, can have a significant effect on the performance of a **pre**  
- **equalizer** when the sampling rate is below the **Nyquist** rate. The  
effect can be large for symbol spaced **pre - equalizers** operating on  
received analog signals with significant excess bandwidth. Because the  
network sampling rate is fixed at 8 kHz, a digital modem operating on the  
...

19/3,K/2 (Item 2 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT  
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00822524   \*\*Image available\*\*

**HOME NETWORKING OVER PHONE LINES**

**CREATION D'UN RESEAU DOMESTIQUE SUR DES LIGNES TELEPHONIQUES**

Patent Applicant/Assignee:

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75248, US, US (Residence), US (Nationality)

Inventor(s):

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AMIT Mati, Nof Harim Street 23, Zur-Yigal, IL,  
SHALVI Ofir, Tabenkin Street 19, 46000 Herzlia, IL,

Legal Representative:

KEMPLER William B (agent), Texas Instruments Incorporated, P.O. Box  
655474, M/S 3999, Dallas, TX 75265, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200156182 A1 20010802 (WO 0156182)

Application: WO 2001US3207 20010131 (PCT/WO US0103207)

Priority Application: US 2000178969 20000131

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DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ

LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG

SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 11902

Main International Patent Class: H04B-001/38

Fulltext Availability:

Detailed Description

Detailed Description

... higher constellations 512 Quadrature Amplitude Modulation (QAM) and  
1024 QAM, as examples.

0 The output of constellation encoder 122 is coupled to the input of  
preequalizer / precoder 124. The pre - equalizer /precoder 124 allows  
compensating for channel reflections at the transmitter. A pre -  
equalizer or a precoder, or both may be

4  
used. A pre - equalizer 124 is a device comprising a Finite - Impulse  
- Response ( FIR ) filter with programmable coefficients that are  
determined by the receiving station 200.

These coefficients are transmitted from the receiving station 200. A  
precoder is a...

19/3,K/3       (Item 3 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00228256   \*\*Image available\*\*

**PROGRAMMABLE NOISE BANDWIDTH REDUCTION BY MEANS OF DIGITAL AVERAGING**

**REDUCTION DE LA LARGEUR DE BANDE DE BRUITS PARASITES PROGRAMMABLES AU MOYEN**

DE L'ETABLISSEMENT DE LA MOYENNE NUMERIQUE

Patent Applicant/Assignee:

COMMUNICATIONS SATELLITE CORPORATION,

Inventor(s):

POKLEMBA John J,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9302506 A1 19930204

Application: WO 92US5849 19920716 (PCT/WO US9205849)

Priority Application: US 91426 19910716

Designated States: CA JP KR AT BE CH DE DK ES FR GB GR IT LU MC NL SE

Publication Language: English

Fulltext Word Count: 8041

Fulltext Availability:

Detailed Description

Detailed Description

... is equalization,

may be applied at the transmit end, Specifically, the transmit end equalization must compensate for a 0.9 dB excess loss at the Nyquist frequency and a softer overall response,

An embodiment of the data filter according to the second embodiment of the invention is illustrated in Figs 5...

?